# The Builder.

VOL. LXI. No. 2546. SATURDAY, NOVEMBER 21, 1891.


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### *A Book on the Fine Arts.*

THE Professor of Fine Art in the University of Edinburgh has compressed into a small volume* more real thought and suggestion on the subject than we often find in larger and more pretentious treatises. The book is arranged under three leading heads: "Art as the Expression of popular feelings and Ideals"; "The Formal Conditions of Artistic Expression"; and "The Arts of Form." The book is not for artists so much as for the general reader, to stimulate his interest in the more purely artistic qualities of works of art. "There is no reason," says Professor Brown, "why the real aims and conditions of artistic work should not be understood and appreciated as widely as are the literary conditions which attach to subject pictures and historical monuments," and the object of the book is to assist in rendering these better understood. We fear the belief expressed is a little optimistic. The "literary considerations" referred to,—by which phrase we suppose is meant the appreciation of the story told in a picture and the manner of telling it, that element in it which could be separately expressed in literary utterance,—can be expressed as a statement of facts, the comprehension and acceptance of which requires little exercise of thought or reasoning. The aims and conditions of artistic work can only be estimated by a process of reasoning which demands a much more decided intellectual effort, and which many are unable to enter into, either from mental indolence, from a natural deficiency of perception, or because they have never been accustomed to give their minds to reasoning on such subjects. This latter obstacle may no doubt be to some extent overcome by the influence of well-written and thoughtful critical treatises such as the book before us; but too much must not be expected even from these.

It is with Professor Brown's ideas about architecture that we are chiefly concerned; but we may first glance at the general theory of the Arts which is embodied in his book. He adopts the view which has been partially adopted or suggested by previous critics of the subject, that Art essentially is "play"; the use and exercise of human powers in a free and unfettered manner, something beyond and independent of the action which is called out by the material necessities of life: only with the reservation that "Art is play under the influence of the principle of order." This is a very comprehensive definition, and will be found to include, in a broad sense, every form of Art. "The leap or the caper only develops into the dance when it learns a certain rhythm, and without measure and refrain the cry and shout cannot become the song. The idle streaks and notches of the knife are not ornamental until arranged in some sort of pattern," &c. This is not new, of course, but there is something new in the special way in which the author puts it, in emphasising the influence of "The Festival" as the great stimulus to artistic expression, the festal origin of graphic and plastic decoration, and more especially the festal origin of architecture. This latter idea runs through all that is said on architecture in the course of the book, more or less; that is to say, Professor Brown is rather anxious to discredit the idea of the utilitarian origin and purpose of architecture, at least to throw it more into the background than it has lately been placed, and insist on the purely artistic character of architecture; a critical expression of opinion which has some special interest just at present. He admits indeed in one place that the utilitarian element in architecture must be regarded as something exceptional to which none of the other arts can show any parallel (which is a rather serious admission), but maintains that a glance at the early history of art in Egypt, Babylonia, and Greece, exhibits architecture as far more an art of free expression than a merely utilitarian craft.

"The buildings which in these remote periods gave architecture the character that it has ever since retained, were not houses or ramparts, but Temples, Palaces and Tombs,—structures far more for show than for utility, though serving at the same time (generally only in a part of them) a practical purpose. That characteristic of architecture which we express by the term 'monumental,' the dignity of imposing mass and rock-like stability, of awful height and far-extended breadth, is certainly not the part of it that can be due to considerations of use."

Not in a Mediæval castle, for instance? What about Pierrefonds, or the keep of Kenilworth? The Egyptian and Greek temples were not utilitarian, certainly, in their ultimate development, but the author emphasises their utilitarian derivation in the sketch of the "primitive hut" of ancient Egypt (page 235). This one example is sufficient to illustrate the radical distinction between architecture and painting; the latter free to imitate and adopt every form on earth, perfectly unfettered in its construction; while architecture is limited to the use of forms in a condition of constructional balance and stability, and which are based on utilitarian needs in the first instance. It is however a fine and suggestive idea, that all great architecture inherits something of the spell of simple magnitude and solemnity of effect which belonged to the early rude stone monuments. "There is something Megalithic, primeval, in the aspect of the noblest buildings of all times. Every architect worthy of the name will catch the same spirit." This is finely said, and it is true enough that architecture in the highest sense does not begin till we get beyond the mere demands of utility. But, in most cases, if we come to look into the matter, the influence of utility is at the bottom of it, and that of construction, at all events, never leaves its hold: and there lies the unconquerable distinction between architecture and such an art as painting.

In the second part of the book, "The formal conditions of artistic expression," we find the elements of architectural effect classed as masses, lines, and light-and-shade and texture. Upon this latter point the author is at variance with much which has been said of late. The influence of light and shade in giving the peculiar value of texture to architectural surfaces is not to be overlooked, nor does he forget that a good deal of the pleasure we derive from old buildings is due to the varieties of surface caused by the influence of time. But he makes the at present unpopular reservation that it is possible to carry the admiration for this accidental effect too far, and that "there is a touch of modern affectation in the sentimental

* "The Fine Arts." By G. Baldwin Brown, M.A., Professor of Fine Art in the University of Edinburgh. London: John Murray. 1891.

delight some take in time-worn brick or stone work, which after all was meant by its builder to be sharp of angle and even in grain." This is an undoubted truth very much lost sight of at present; and on another page the author remarks, with we believe equal truth, that "a Greek stone-cutter would have been scandalised at the idea of running his mouldings in 'wavy lines,' or varying by a hair's-breadth for artistic reasons the given profile." This is what we have more than once urged, and we are glad to find Professor Brown in accord with us. It has been asserted that the slight variations of line to be discovered on minute inspection in a carved repeating ornament in Greek architecture were consciously done to prevent rigidity of effect. We believe nothing could be more contrary to fact. It must remembered in the first place that such ornaments, as we now see them, even in hard marble, have suffered to some extent from disintegration of surface in the lapse of time. After allowing for that, any further slight irregularities are due to the imperfection attending all human execution. An ornament is either a repeating ornament, or a free one. If it is intended as a repeating ornament, the more exact the repetition the more perfectly is the aim attained; and it is entirely contrary to the spirit of Greek art to imagine that a Greek carver would have undertaken any such work but with the desire to execute it as perfectly as possible. To credit him with the contrary aim is to project back upon Greek work an ideal of execution which is essentially modern.

In regard to the subject of colour in architecture the criticism given in this book also deserves attention. While premising that as different materials used in building have considerable varieties of hue, it is a legitimate part of the architect's work to arrange them so as to produce a pleasing colour effect, the author lays it down positively that polychrome effects of colour are not of the essentials of the art. The architect, he argues, can express himself perfectly in a single building material; and he points out that this was done by Wren, whose work owed nothing to the painter or sculptor, "who are fondly regarded by some as ministering spirits necessary to architecture." This may be put a little too strongly; at all events a distinction may be drawn between the need for colour externally and internally; but in the main we think the view a sound one, however opposed to the prevailing habits of artistic criticism of to-day. In regard to the exterior use of colour by the Greeks (which is passed over rather too lightly), he puts the matter in a light which is rather new. Glancing at the wooden or partially wooden origin of the Greek style, the author suggests that to this may be traced the practice of exterior painting, as a kind of survival. "To paint woodwork is an obvious and necessary process, preservative as much as ornamental; but this is by no means the case with the more durable stone, the finer sorts of which have their own beauties of tint and of varied surface. Hence we may regard painted *stone* architecture as a survival from painted *wood* architecture, and exclude colour applied in this way from the list of architectural effects that are of the essentials of the art." This is a suggestion which, if a little fanciful, at least tends to put the subject in a new and rather suggestive light.

In Chapter IV. of the second part we note some very wholesome remarks in regard to the importance of attending first to the impression of a work of art as a whole, rather than to criticism of the parts. In criticising architecture we should not trouble ourselves about the details of the figure sculpture, "or such other unessential portions," but regard these merely as elements in the general effect, and judge them solely in this relation. "By so doing it is possible to become a critic of architecture." The opposite process would be to consider first the details, say the figure sculpture, "while the building itself is looked upon as in the main a framework or a show-box to set off these interesting items;" which is exactly the way, we have observed, in which sculptors themselves usually regard architecture, not to speak of the inartistic public. It would be impossible to take a more false view of architecture, but it is a very common one in the present day, even among architects. Professor Brown, it must be added, is equally positive as to the study of the whole in regard to sculpture and painting also. It cannot, he observes, be too strongly impressed on the student that a picture is good or bad in itself as a whole, irrespective of the special elements which make it up; and only the comprehension of this "will turn the ordinary Royal Academy visitor into an appreciative critic." We are far enough from that at present, certainly. And in regard to architecture again, when we have cultivated this habit of studying the building as a whole, we become more alive to the value of a "unifying element" in architectural design, and the importance of repetition in emphasising form and direction.

As we have already observed, the author is rather disposed to tilt at the utilitarian theory of architecture, as "construction beautified." It is true, as he says, that this theory, or what Viollet-le-Duc calls "respect absolu pour le vrai," does not cover the whole field of legitimate architectural practice; for that matter, no strictly-defined theory does cover the legitimate practice of any art; but we are disposed to think that the theory of "construction beautified" covers more of architecture than the Professor is quite willing to allow it. In testing the theory by the Doric façade he makes a point, however, in regard to the frieze, which he characterises as absolutely necessary to the scheme of proportion, but having "no constructive significance." It has not in the matured Doric temple, certainly; but it probably had in the simpler building which was the forerunner of the Doric temple: it is a survival. We admit, however, that this is not a complete answer. The author's argument in regard to the Gothic cathedral, however, is more open to question. He describes its construction, and says that so far it is a mere piece of engineering; he asks where the art makes its appearance, and argues that it is to be found in the freedom from mere scientific exactitude. Is there not another way of looking at it? Take the vault; an engineer, adopting the constructive method of Middle Gothic, and building the vault as a stone framework, would probably have left the ribs of a square section: they would do the work equally well, and the moulding would be a useless expense in his eyes. But what would be the beauty or expressiveness of the Gothic vault with the vaulting-ribs unmoulded? And what is that moulding but decorated construction? The same reasoning may be applied to almost every portion of a typical Gothic cathedral. It is in reality more severely logical than a Greek building, though its expression is so much more romantic.

In the analysis of the Doric forms, in a later chapter, there is a good remark in regard to the diminution of the column upwards—"the thinning of the shaft above hints at a fixed limit of height, which no mere cylinder would suggest." This may be added to the other æsthetic reasons for the diminution of the column, but only as an addition; it is not the only one by any means. We must put a note of interrogation, also, to the remark as to the origin of horizontal mouldings or string-courses, as "essentially a carpenter's feature, and developed naturally from the use of material that extends to great length in one direction." So easily, observes the author, are mouldings made in wood, that miles of them are issued every day out of the planing mills for use in interior fittings. So they are; but the Greeks had no planing mills, and we very much demur to the idea of the string-course as an essentially wooden feature. It seems more like the emphasis and architectural treatment of a flat bonding course in masonry. There is to be borne in mind also, the desire to provide drips to keep the rain off the surface, which would be likely to suggest the device of a projecting course, and then the moulding of it follows as a matter of practical necessity for its purpose, in the first instance, becoming a means of expression afterwards.

In the same chapter Professor Brown takes up the defence (to some extent) of the use of the Classic order as an applied architectural decoration. He points out that the Greeks themselves used it occasionally in that sense, instancing the Lion Tomb at Cnidos: he might have added the Erechtheion, as a more salient example in a higher class of architecture. This was the application of a form which originally meant a column and beam construction, to impart architectural expression to an otherwise plain wall. And after all the crusade against this thirty or forty years ago, we seem to be coming back to it again. It must be admitted that there is some truth in Professor Brown's remark that as a rule the adverse critics of this use of the orders "have been already prejudiced in favour of other styles, and have had no eyes for the sober dignity of Classical compositions." The position of the Gothic purists in regard to the forms of Renaissance architecture was no doubt absurd and overstrained: there are many charming buildings in the world in which Classic orders have been employed in this *postiche* manner; but it does not follow that it is well to revive it now. The subject, however, is far too difficult and important to be discussed in a passing sentence. Only we must take exception to Professor Brown's assertion that the Roman application of an order in front of a constructive arcade is no more illogical than the Greek use of it as part of a wall. To our mind it is quite a different thing. It is the employment of the forms of beam construction on a building which is really of arched construction. The Greeks did not use the arch; if they had, we venture to think they would never have combined a mask of columnar architecture with it.

In the author's remarks on perspective, in Chapter I. of the second part, he draws attention to the curious anomaly, sometimes overlooked, that there are really two different ways in which a set of complex objects in nature can be correctly delineated; one way by pure draughtsmanship, the other by pure science. In the practical daily work of the painter, it is observed, "The preliminary conditions required for the orthodox performance of perspective rites are as a rule unattainable;" a sentence in which there is just an enjoyable flavour of banter at the expense of the perspective draughtsman. Mere scientific perspective-drawing is not a very intellectual occupation certainly, however the soul of Paolo Uccello may have thriven on it. But the use of a scientific grasp of perspective to a painter would be to give him a scientific knowledge of what the forms are which complex objects really take when seen from a certain position, and which are sometimes so intricate as to be with difficulty unravelled by the eye alone. We know a case in which a very eminent painter was unable to lay out to his satisfaction a scene in the interior of a temple until he had a model made to a small scale. The degree of scientific knowledge and practice possessed by a good architectural draughtsman would have saved him that trouble and expense for what is after all an unsatisfactory expedient, since a model can never appear to the eye like the full-size building, either in linear or aërial perspective.

The illustrations to the book are not numerous, and are mostly old friends, which have done duty in Fergusson and elsewhere. This merely renders the book less attractive and also less costly than it might otherwise have been, as most of the criticism in it can be well understood and followed without reference to illustrations. While we have had to differ slightly from Professor Brown in one or two points, we must express our gratification that the subject of the Fine Arts in the series of University Extension

Manuals (of which this forms one) should have been placed in such good hands, and treated in so clear and logical a manner and in such a comprehensive and philosophic spirit.

## NOTES.

THE correspondence on "Architecture a Profession or an Art" was continued in the *Times* on Tuesday last. Mr. W. White, in a rather vague and rambling letter, made the suggestion we have already made, that the artistic powers of an architect, whether he has passed an examination or not, will be eventually tested by public appreciation, just as those of a painter are tested. A correspondent who signs himself "Art-Union" makes the delightful suggestion that while the Institute examines architects in science and construction, the Royal Academy should examine them in art: so that the five architects who are members of the Royal Academy would be the arbiters of what constitutes architectural art! Mr. T. G. Jackson takes the unnecessary trouble of replying to a letter by a certain surveyor who appears to have got the ear of the *Times* and to be allowed to pose as an architectural teacher in its columns. Mr. Jackson is in error in supposing that this gentleman in any way represents the Institute of Architects or their ideas; he represents no one but himself. But when Mr. Jackson asserts that the "art-architect" who neglects business and construction and only attends to design is a bogie invented by the Institute, we may offer him two anecdotes in return from our own experience. A very clever and genial "art-architect" was heard to say with charming candour (perhaps in an unguarded moment), "I hate drainage; I like to have all that done for me." And a still more eminent "art-architect," who was asked by a client if he would not come and look at the site before making the design for a house, replied, "That was not necessary." We had this from the client first-hand, otherwise it might have appeared incredible. We do not think Mr. Jackson would condone either of those sentiments, but there are people among his party who would.*

MR. T. R. SPENCE has just completed the decoration of the sanctuary ceiling at All Saints' Church, Ennismore-gardens. Until recently the interior was conspicuous by its coldness of effect. This was partially remedied by the insertion of a new alabaster reredos and a dado round the sanctuary of the same material. The sanctuary is apsidal on plan, with a ceiling forming a semi-dome. This has been treated by Mr. Spence after the manner of work characteristic of Northern Italy. Immediately above the springing level are standing figures of saints. In the centre a view of an Eastern city has been introduced, and immediately over this is Our Lord in majesty. Flanking this central figure are angels, which thus form a second tier over the saints. The whole of the figures have been treated in various tones of yellow, russet, and brown, while the background is a rich blue, and some brighter lights have been introduced on the central figure, the nimbus of which is of metal and slightly raised. Some colouring has also been applied to the imposts of the chancel arch, and the result of the whole is very satisfactory. The nave of the church will, we presume, be also treated with colour. At present the effect is chilly in the extreme, and the work just completed eastward is, we hope, the beginning of a complete scheme for the whole building. Mr. Spence has also been designing some rich glass mosaics which are to be fixed in the sanctuary of St. George's Church, Newcastle-on-Tyne, and will take the place of the marble on either side of the reredos. We gave an interior view of this church, and also a detail of the decoration, in our issue of November 15, 1890.

IN the Belgian architectural journal, *L'Émulation*, M. Saintenoy is continuing his illustrated articles on Oxford, which exhibit both enthusiasm and critical judgment. The portions of Oxford illustrated in the last issue are portions of Corpus Christi, Oriel, Merton College and St. John Baptist's Church, and Magdalen from the High-street. The general effect of the High-street with its succession of colleges impresses M. Saintenoy as it has impressed so many other foreign visitors, with mingled surprise and admiration.

A BISHOP'S Commission is about to consider the advisability of uniting the parishes of All Hallows Barking, and St. Dunstan-in-the-East. The body of the latter church was erected in 1817-21, in the modern Gothic style, at a cost of about 36,000*l.*, after the designs, jointly, of David Laing and his pupil, W. Tite,—though we believe that to Tite the major share of the work was due,* —in place of Wren's Classic rebuilding. Wren built the tower in 1698, in the Pointed style, but with some incongruous detail. His implicit trust (according to the well-known anecdote) in the stability of the spire was due partly to his having provided, to balance the thrust of the four flying arches, four pendentives, 30 ft. long, reaching down to the belfry floor within. Wren may have had in his mind the old tower of St. Mary-le-Bow, whereof a view, taken from a brass seal made for the parish in 1580, is given in the *Gentleman's Magazine*, No. xciii., part 1, p. 305. St. Nicholas's, Newcastle, 1359, and restored by Sir G. G. Scott in 1873-6, with which this is often compared, is loftier, and is, on plan, four times larger. Laing and Tite's interior bears some likeness to that of Wren's St. Alban's Wood-street; the nave ceiling is groined in plaster. St. Dunstan's rectory, a "peculiar" of Canterbury, is vacant; we are told that it is proposed to apply the endowment in benefit of St. Dunstan's College, Catford, erected a few years ago from plans by the late Mr. E. N. Clifton, architect. (We gave a view and plan of this College in the *Builder* for April 21, 1888.) All Hallows Barking is renowned for its iron-work, monuments, and brasses. Like other London churches with this dedication, its foundation is ancient, being of Stephen's time. It belonged to the convent founded at Barking, Essex, by Erkenwald, fourth bishop of London, for his sister Æthelburgha in 670. Richard I.'s chantry of St. Mary was rebuilt by Richard III. for a college of six canons and a dean. After the Dissolution the college site, to the north, was converted into a garden and then built over. About twenty-five years ago the south porch was pulled down for a widening of Great Tower-street; opposite stands one of the oldest houses left in the parish, and Rose-court with its curious roof—so named, we imagine, from the "Rose" tavern, of which we read as being there at the time of the gunpowder explosion (1649), described by Strype, and which so injured the church. Recent alterations for traffic, together with the making of the railway, have changed the aspect of this parish more perhaps than that of any other in London. The brick tower, at right-angles with Seething-lane, and not with the nave, was built in 1659. The large eastern window, fourteenth century, was restored in 1814, when the roof was reconstructed and other extensive repairs effected. The nave arcade consists of four arches upon massive round pillars, with simple capitals of late twelfth or very early thirteenth century style. Continued into the chancel, the arcade changes to higher clustered columns, carrying arches less acutely pointed. In Hatton's day (1708), the capitals were gilded; the whole arcade is now covered with paint. The pulpit and sounding-board are of James I.'s time. The altar-piece was presented in 1685. A floor-plate commemorates George Snayth, auditor to Laud, whose body lay here for twenty years before its removal to St. John's College, Oxford. Of the Evyngar (Flemish) brass, we printed a description on February 25, 1888; the William Thynne, of another famous brass, was Henry VIII.'s chief clerk of the kitchen, and first editor of Chaucer's works. Scheemakers carved the bust of Anne Colleton,—died 1741. In this parish were born William Penn (Tower-hill), Bishop Andrewes, and Lord Chief Justice Bovill (Katharine-court). In St. Dunstan's-in-the-East was baptised (September 4, 1794) Frederick Thesiger, Lord Chancellor Chelmsford, whose parents lived at No. 1, Fowkes-buildings, Great Tower-street.

WE read in the *Athenæum* that the armoury at Madrid, the last remaining portion of the old "Alcázar" is to be demolished in order to clear a space in front of the new cathedral, now being erected. The Royal Palace occupies the site of Al Cázar, or Castle, an ancient Moorish palace in the west of the capital, where, on the east bank of the river Manzanares, Henry IV. built for himself a hunting-seat. When Charles V. took up his residence in Madrid, he enlarged Al Cázar, which, as further extended by Philip II., was burnt in 1734. A new palace was built, of white Colmena granite, after the designs, in the Tuscan style, of Giambattista Sachetti, of Turin. He supplied drawings for a palace of eight or nine floors, 470 ft. square on plan, instead of Juvara's original project, rejected by Philip V., for a range of buildings covering an area 1,700 ft. square. It was begun in 1737 and completed twenty-seven years later. The famous collection known as the Museo de la Real Armeria is stored southwards of the palace, and will now be removed into a new building by the river-side.

THE "National Footpath Preservation Society" send us a briefly worded list of the cases of closing or attempted closing of a public footpath in which the Society has interfered. The number of cases during the last year (October 1890 to October 1891) is 132, but it is to be regretted that in regard to most of the cases the Society seem unable to give any information as to what was the result of their interference. Considering what a tendency there is in the present day for private owners to block up footpaths to which there has been a prescriptive right by long custom, and in how selfish a spirit this is often done, it is well that there should be a body prepared to call in question any such changes on behalf of the public; but they should certainly endeavour, in their future reports, to give some statement as to the results of their efforts; they will be a great deal more likely to receive public support if they are known to have been successful in a fair proportion of cases.*

WE read that a large space in Clerkenwell is about to be opened to at least the sight of the public. The New River Company have agreed to the substitution of a dwarf wall, with railing, for the high brick wall which the London County Council had covenanted to build along the Company's ground in continuing their new Rosebery-avenue to the "Angel" Tavern. According to some early views of the locality, including Hollar's series of small etchings (1665),† the prints by Chatelain, Canaletto, and others, this ground was formerly unenclosed, save by sets of railings here and there. Filtering-beds replace the original "outer pond,"

* On looking again at Mr. Macvicar Anderson's presidential address, we perceive that we inadvertently did him an injustice, in our Note of last week, in accusing him of dividing architects into business men, constructors, and artists; as he went on immediately afterwards to say that the true architect combined all three functions. Mr. Norman Shaw overlooked this in his letter in the *Times*, and led us into forgetting it also.

*See our obituary notice of Laing, April 5, 1856.

* For those who have complaints to make as to the blocking of footpaths, we may mention that the office of the Society is at 42, Essex-street, Strand.

† Such as "The Water-house, by Islington"; "By Islington"; "The Water-house," with old St. Paul's in the distance, &c.

whilst the head or basin, next south, has been enlarged and lined with brick. This basin, depicted in George Bickham the younger's print, "Sir Hugh Myddelton's Glory," of the first filling of the New River Head, corresponds, we take it, with an ancient ducking-pond, the "open idell pool" described by Maitland (1739) and by Howes, and lies about 85 ft. above the Thames. A reservoir upon higher ground, shown as railed-in in a print, 1720, of the premises and works, preserved at the head-office, is that which now stands at top of Pentonville-road. The words, "The Water House," of Visscher's view made in 1616, indicate, we think, Bevis Bulmer's works by Queenhithe (1594) rather than the distant and invisible house at Clerkenwell. Anyhow, the latter had then been standing for three years; in 1782 Robert Mylne restored, almost rebuilt, the Company's offices here, including the house he occupied as chief engineer. His son and successor built the engine-houses and machinery at New River Head and Stoke Newington; but, we are told, the base of the "wheel-house," at the former, is old. On October 6, 1888, we illustrated Mr. Crowther's excellent water-colour drawing, exhibited at the Royal Academy, of the "Oak-room," as fitted, *temp.* William III.,* by the Company's Clerk, John Grene, who had married Myddelton's grand-daughter. We may add, apropos of the present "London water question," that an entire freehold Adventurer's share was sold for 14,000*l.* in 1811; and on July 17, 1889, at auction, for 122,800*l.*, the previous year's dividend being 2,610*l.*, with a reversionary interest in the landed property. In 1708 the value was computed at 4,500 guineas, says Hatton. Nelson tells us that in and about 1760 the whole of Islington beyond the "White Lion" got no supply from the New River, except on payment of ½d. per pailful.

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ON December 1 will be offered for sale at the Mart, the house now known as No. 15, Berkeley-square (east side), the residence of the late Mr. F. Lehmann, F.R.G.S. In the auctioneers' advertisement the house is described as "formerly occupied by the illustrious Horace Walpole." It is commonly stated that Walpole's house in the square is that now numbered 11. It is true that Mr. Laurence Hutton, in the sixth edition (1888) of his "Literary Landmarks of London," says Walpole's house "was on the south-west corner of Hill-street, and was numbered 42, Berkeley-square, in 1885." But he overlooks the fact that when Walpole removed in October, 1779, from No. 5, Arlington-street, the numbering of the houses in the square began from the south-west corner. During, or not long after, his lifetime, all the houses were re-numbered from the south-east corner. Thus the No. 11 of Walpole's day became No. 42, and the No. 40 became No. 11. These changes are clearly set out by the two sets of postal numbers shown in Horwood's original map, dated June 22, 1792, and his extra sheet published in June, 1819. In a Directory of 1797, No. 8 is Lord Clive's (now 45, the late Earl of Powis his descendant's), and No. 6 is the Earl of Chatham's. The present No. 11 is drawn, by Mr. G. N. Martin, as Walpole's, in Mr. Wilmot Harrison's useful little book, "Memorable London Houses" (1889). Walpole writes to the Countess of Ossory from "Berkeley-square, my inauguration day, October 14, 1779":—

"I am come to town this morning to take possession of Berkeley-square. . . . Lady Shelburne's being queen of the palace over against me, has improved the view since I bought the house."†

On October 10 he had written from Strawberry Hill to Sir Horace Mann:—

"I am removing into a new house in London that I bought last winter. . . . It is in Berkeley-square whither for the future you must direct."

This probably is the house of which he writes to the Countess of Ossory on January 15, 1797:—

"At home I see only a few charitable elders, except about four-score nephews and nieces of various ages who are each brought to me about once a year, to stare at me as the Methusalem (*sic*) of the family."

and in which he died on March 2 of that year. No. 15 is held by lease from Lord Berkeley for a term of forty-four years unexpired, at 200*l.* per annum. It has been decorated by Messrs. Gillow & Co., under superintendence of Professor Aitchison, A.R.A., and, it is stated, contains some work by distinguished artists. According to a drawn plan in the Crace Collection, of part of the Berkeley Estate, 1676, the square was laid out (twenty years later) just beyond Little Brook Field, the Aye Bourne running between the field and the site of the square; on the field was built Shelburne (since Lansdowne) House. Berkeley House, burnt in 1733, and rebuilt by Kent for the Duke of Devonshire, was built *circa* 1665, on the Penneless Bank where had stood Hay Hill Farm, for John, Lord Berkeley of Stratton.

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THE London County Council occupied a special sitting last week by an academic discussion on the incidence of local taxation in London, and passed an amendment (moved by Professor Stuart, M.P.) to the Reports of the Local Taxation Committee. This was that "the existing system of local taxation in the metropolis unduly favours owners at the expense of occupiers, and that it is urgently necessary that this injustice should be redressed." Resolutions of this kind are mere waste paper: Parliament, and not the London County Council, is the legislating body, and scores of such resolutions will not alter the law unless Parliament and the country generally desire the alteration. Moreover, the subject is one which concerns the whole country, and not London alone. But it has been demonstrated over and over again that if owners have to pay more of the taxes directly, then the rents of the occupiers will be raised in proportion. This is clear beyond doubt. The whole discussion was essentially unpractical, and it is a little difficult to understand how apparently reasonable men can occupy time over such debates. The question to some extent was some time ago put to a practical proof in regard to the Strand Improvement Scheme: the views of the Council were negatived by Parliament. Assuming even that Parliament is wrong, the County Council cannot alter the rule of the legislature, and it should do its business having regard to the existing law. Professor Stuart and Lord Compton should raise this kind of debate at Westminster, and not at Spring-gardens.

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THE Mansion House United Association on Railway Rates has prepared a useful statement of comparisons between the schedules still awaiting Parliamentary sanction and that of the London and North-Western Railway Company. The latter, it will be remembered, was dealt with by the Joint Committee as typical; and, together with the schedules of eight other leading lines, passed into law in August last. These companies are busily engaged in examining and revising their rates, which have to be framed, in accordance with the new law, by August 1 next. They endeavoured to get the operation of the Act postponed for a further two years, on account of the labour involved in ascertaining how far the rates will have to be revised in order to avoid exceeding the new maxima; and the Board of Trade have power to extend the time if it should prove absolutely necessary. It appears that the price of the Acts relating to these nine companies is 3s. 3d. each, and much dissatisfaction has naturally been expressed in consequence. The price of the original schedules submitted by the companies was 1s., while that of the Provisional Order Bills was about 6d.; so that it is difficult to understand why so extravagant a charge should be made for copies of the Act. A letter in the *Times* of the 12th inst., seeking an explanation, remains unanswered. There are 230 schedules still undecided, and the Board of Trade have placed them in forty-seven groups, thirty-seven being applicable to English railways, five to Scotch, and five to Irish. As the Board will still give consideration to any facts and figures bearing on these schedules which may be submitted to them before the re-assembling of Parliament, the particulars furnished by the Mansion House Association will, no doubt, prove very serviceable. There is not much variation from the London and North-Western provisions, one of the most noticeable being in the maximum weight proposed for small parcels in the case of Scotch railways, which is fixed at 2 cwt., instead of 3 cwt., as on the English and Irish lines. In practice, however, the Scotch companies have always adopted a maximum of 1 cwt.,—as, indeed, did the English companies for many years prior to the introduction of the present 500 lb. scale. As regards station and service terminals, there is no variation whatever, the charges proposed being precisely the same as those provided by the London and North-Western Act in every instance.

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WE congratulate that evidently pious journal *The Churchman*, of New York, which boasts itself in its prospectus to be "the only illustrated denominational weekly," on the manner in which it procures the illustrations which it seems to think so great a recommendation. At the beginning of the present year we commenced publishing at monthly intervals a series of illustrations of the English Cathedrals, from drawings made specially for us at considerable cost, with plans which in some cases were the result of a great deal of careful measurement, in other cases were lent for publication in our pages by Societies or individuals who had made a special study of a certain cathedral. These *The Churchman* has been systematically reproducing as its own, month after month; very badly and coarsely, it is true, but the good intention is evident. No doubt, according to the present condition of copyright law in America, which is a disgrace to the United States Government, a journal which plunders in this way is within its legal rights; though some American journals, at all events, are better than the American law. It is significant to note however, that in New York a journal which, from its title, evidently claims to be more or less a religious publication, will think nothing of purloining a whole series of important illustrations from an English journal without asking the consent of the latter, without offering any compensation, and without even the common decency of acknowledging the source of its plunder.

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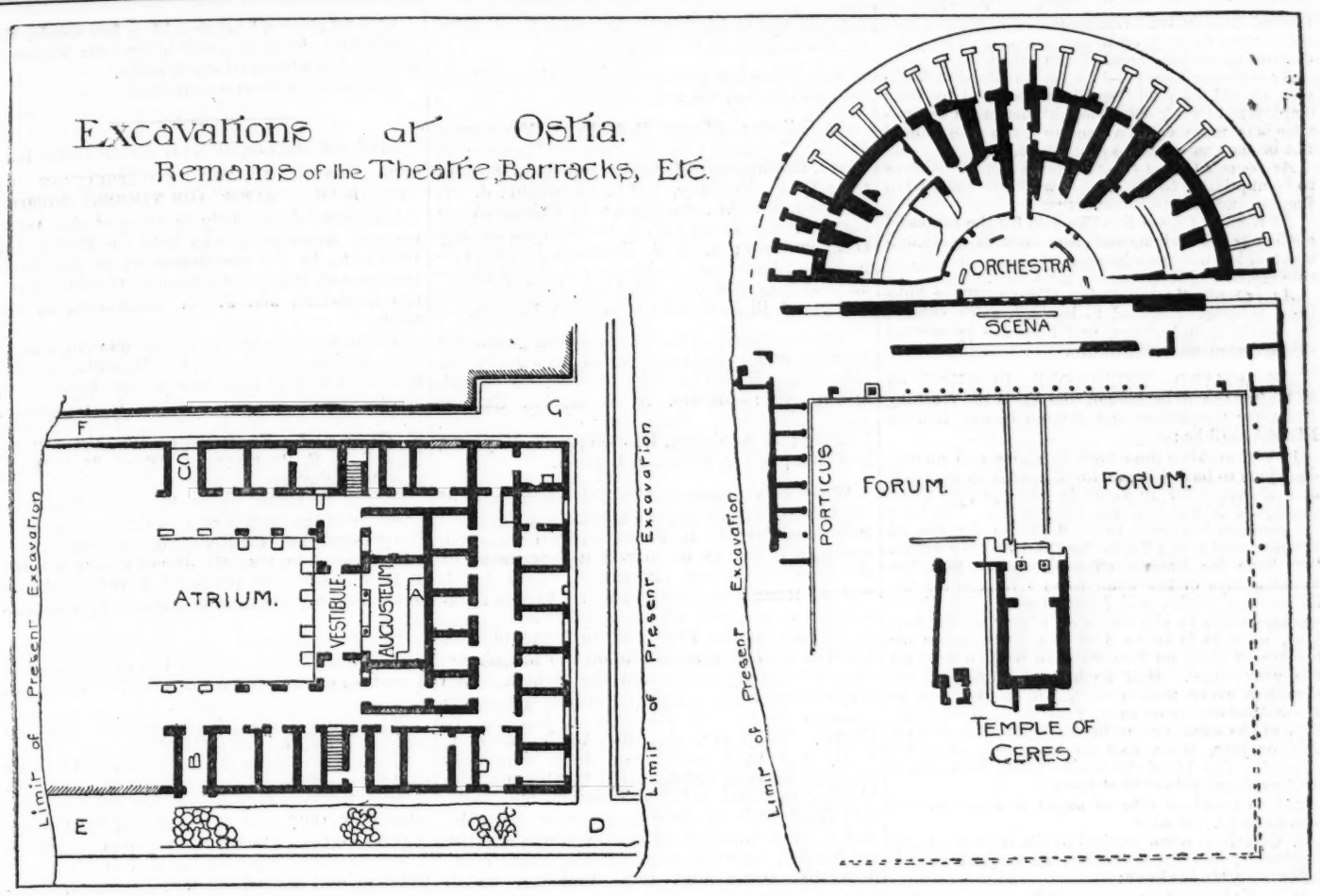
## EXCAVATIONS AT OSTIA, NEAR ROME.

IN the years 1880 and 1881, after excavations executed on behalf of the Italian Government, the theatre of Ostia was discovered, and a great portion of the forum which was in front of the theatre also. It was possible to ascertain from the different remains that the theatre had been raised at the epoch of Agrippa, and the remains of this epoch consist of walls of brick of perfect work, with slight traces of reticulated work, and contemporary with these are other portions constructed with parallel pieces of tufa. The first repairs of this theatre took place at the period of Septimius Severus and Caracalla, and some brick walls of rather careless work relate to that period. The third construction, with every sort of material belonging to other edifices, belongs to the last decadence of Rome, and brings us to the epoch of the Emperor Honorius, or about that time. The chronology of the inscription agrees perfectly with the architectural indications.

Under the emperors Septimius Severus and Caracalla, the theatre was restored almost from its foundations, with the exception of the stage and of the passage which divides the

* See the *Builder*, "Architecture at the Royal Academy," June 19, 1888.

† The "palace,"—which he could not have described as "over against" the present No. 42,—is Lansdowne House, built *circa* 1770 by Robert Adam for Lord Bute, who sold it, uncompleted, to William Petty, Lord Shelburne, for 22,000*l.*




stage from the *cavea*. Behind the stage, and towards the Tiber, a square extends 78·70 mètres wide, which seems to have been surrounded by porticoes, and which, as many pedestals with honorary inscriptions dedicated to citizens of the Ostiense colony were found there, must be undoubtedly recognised as the forum.

In the middle of this square were found the remains of a temple 25·50 mètres long, and 11·30 wide, the sides of which were broken or severed almost to the level of the pavement, which was of slabs of marble. The sides, or walls, are 1·40 mètres thick, and are constructed in brick. Near the walls at the bottom or end are the traces of the altar, 3·40 mètres long, and 1·20 wide. With the exception of some fluted columns of 0·65 mètre in diameter, no other remains are to be found of columns, entablature, or pediment. It seems that the temple was dedicated to Ceres, as may be inferred from several inscriptions.

The space covered by the porticoes which surrounded the forum was divided by back walls into many rooms, which became the residences of the corporations occupied in the corn-trade, and various inscriptions relative to these corporations were really found in these porticoes, especially in the eastern part.

Behind this eastern portico was discovered, in recent excavations of the last few years, the large barracks of the firemen (*castra ostientia*), the arrangement of which is shown on the plan. The hall is preceded by a vestibule, with the front ornamented by two columns and two pilasters. The vestibule measures 9·60 mètres in length, and 4·10 mètres in width, and the pavement has a chiaroscuro mosaic representing the sacrifice of a bull. In the wall at the end of the hall there is a large rectangular basement, on which rest five marble bases or altars sacred to the emperors Marcus Aurelius, Antoninus, Severus, Lucius Verus, and Hadrian. Before the vestibule is the entrance around which were situated honorary bases dedicated to various emperors. All round are disposed the rooms destined for the soldiers, and for their head or chief (*præpositus vexillationis*).

The edifice must have been erected or adapted for use as barracks about the middle of the reign of Hadrian (123-129 A.D.). About the end of the second century the barracks were restored by Septimius Severus, who made many additions and changes to the edifice, as is evident from the remains. The barracks are surrounded by four large roads, of which the northern (see plan, D E), where was placed the principal left-hand door, B, is parallel with the left bank of the Tiber, and led to the square of the theatre or forum. The road, F G, on which opened the principal right-hand door, C, has not yet been explored, as the excavations at that point have not been yet continued.

L. B.

## THE CARPENTERS AND JOINERS' STRIKE: THE ARBITRATOR'S AWARD.

THE President of the Institute of Architects has given his award on the matters in dispute between the Central Association of Master Builders of London and the Carpenters and Joiners of London. The sittings were held at the rooms of the Royal Institute of British Architects on October 19, October 22, October 27, and November 3. There were present, on each occasion, Messrs. Colls, Stanley Bird, May, Trollope, Rider, and Henshaw, representing the Central Association of Master Builders; and Messrs. Bowern, Matkin, Mackie, Abrey, Wilkinson, Apperley, and Dew, representing the London United Trades Committee of Carpenters and Joiners; and, on the last occasion, there were also present Mr. Weighill, representing the National Association of Operative Masons; Messrs. Otley and Hennessey, representing the National Association of Operative Plasterers; and Mr. Richards, representing the National Association of Operative Bricklayers. It is unnecessary to quote at full length the preamble of the award, which sets forth all the circumstances and correspondence which led to the arbitration; but it is advisable to reprint here the formal demand made by the carpenters and joiners, as its several clauses are specifically referred to in the award:—

"PROPOSED WORKING RULES FOR CARPENTERS AND JOINERS IN THE LONDON DISTRICT.

1. That the working time for carpenters and joiners, both on jobs and in shops, be forty-seven hours per week all the year round, commencing on Monday, Tuesday, Wednesday, Thursday, and Friday at 7 a.m., and leaving off at 5 p.m. each day, including half an hour for breakfast and one hour for dinner; on Saturdays, from 7 a.m. till 12 noon, with half an hour for breakfast.

2. That the minimum standard rate of wages be 10d. per hour.

3. That overtime be paid at the following rates:—Time and a half from 5 p.m. to 8 p.m., and double time from 8 p.m. to time of starting next morning. On Saturday, overtime to commence at 12 noon, and be paid double time to time of starting on Monday morning.

4. That men being sent from the shop or job shall be allowed, as expenses, 6d. per day if over four and under six miles; and 1s. per day for any distance over six miles from the shop or job, exclusive of travelling expenses, time for travelling, and lodging money.

5. That sub-letting and piece-work shall under no circumstances be allowed.

6. That on jobs a lock-up place to be provided by the employer for the safety of the workmen's tools.

7. That every employer shall provide, both in shops and on jobs, some suitable place for the workmen to have their meals, and provide a labourer to prepare the same.

8. That carpenters and joiners in receipt of full wages, having been employed fifty hours, shall, on discharge, receive one hour's notice and one hour's wages for grinding; the time so allowed shall be occupied for that purpose."

Having stated that all the gentlemen named above as representatives had given evidence before him on each one of the eight clauses constituting the claim of the carpenters and joiners, along with full information as to the hours, pay, and conditions under which carpenters and joiners now work both in London and in the provinces, and that he has impartially and exhaustively considered the evidence, the arbitrator continues—

"*As regards Clause* 1.—The carpenters and joiners have established a claim for consideration in respect of the present code of working hours. The abnormal size of London, and the great distances which workmen consequently have to travel in order to reach their work and their homes, render the conditions of London work exceptional, and different from that of any other town in the kingdom.

*As regards Clause* 2.—The carpenters and joiners have failed to establish their claim for an increase of pay. The decrease in the trade of the country, and the admitted excess of supply over demand for labour, are conditions which point to the curtailment rather than the expansion of wages. The recent strike has been the means of inflicting injury on the trade of the carpenters and joiners of London from which, in my judgment, it will not recover, for a large amount of carpenters' work has been superseded by other methods of construction, which are likely to be increasingly adopted in future, while the difficulty that has been experienced in getting joiners' work done in London during the last six months has given an impetus to foreign and provincial competition, of which producers abroad and in the provinces have not been slow to take advantage. In view of such conditions, to increase the cost of building beyond its

present prohibitive price would be to restrict still further an already restricted trade, and to bring disaster on workmen and all concerned.

*As regards Clause* 3.—It is reasonable that workmen should be paid liberally when asked by their employers to work overtime, but, inasmuch as overtime is in many cases a necessity, the rate should not be such as would be prohibitive.

*As regards Clause* 4.—The clause is amended so as to be applicable to the case of workmen engaged in London and sent to the country.

*As regards Clause* 5.—The case for the proposed abolition of sub-letting and piece-work, in all circumstances, has not been established; consequently, no rule respecting it appears in my award.

*As regards the remaining Clauses.*—They have been practically agreed to by both sides subject to certain modifications, and they are by mutual desire embraced in the award.

MY AWARD, THEREFORE, IS THAT, on and after the date hereof, the Code of Working Rules for Carpenters and Joiners in the London District shall be:—

1. The working time both in shops and on outdoor jobs to be 51¼ hours for 36 weeks in summer, and 47 hours for 16 weeks in winter, equal to an average of 50 hours all the year round. The hour for commencing work to be 6.30 a.m. for the 36 summer weeks, and 7 a.m. for the 16 winter weeks. The hour for leaving off work on the first five working days of the week to be 5.15 p.m. for the 36 summer weeks, and 5 p.m. for the 16 winter weeks, except in the depth of winter on outdoor jobs, when it is to be 4.30 p.m. The hours for leaving off work on Saturdays to be 12 o'clock all the year round. Half an hour to be allowed for breakfast every working-day, and one hour to be allowed for dinner on each of the first five working-days of the week, except in the depth of winter on outdoor jobs, when half an hour only shall be allowed. The 16 winter weeks to be reckoned 8 weeks on each side of Christmas.

2. The standard rate of wages in shops and on jobs to be 9d. per hour.

3. Overtime, when worked at the request of the employers, but not otherwise, to be paid at the following rates per hour:—

| | s. | d. |
|---|---|---|
| From 5.15 p.m. in summer and 5 p.m. in winter to 8 p.m. | 1 | 0 |
| From 8 p.m. to 10 p.m. | 1 | 3 |
| From 10 p.m. to time of starting next morning | 1 | 6 |
| From 12 noon on Saturdays to 4 p.m. | 1 | 0 |
| From 4 p.m. do. to time of starting on Monday | 1 | 6 |

No overtime to be reckoned till each full day has been made.

4. Men who are sent from the shop or job, including those engaged in London and sent to the country, shall be allowed, as expenses, 1s. per day for any distance over six miles from the shop or job, exclusive of travelling expenses, time occupied in travelling, and lodging money.

5. Employers shall provide a lock-up place on jobs, where practicable, and shall take reasonable precautions for securing the safety of workmen's tools, but without incurring responsibility for loss.

6. Employers shall provide, both in shops and on jobs, where practicable and reasonable, a suitable place for the workmen to have their meals, with a labourer to assist in preparing them.

7. Men who are in receipt of full wages, and who have been employed for 49 hours in summer or for 45 hours in winter, shall on discharge receive one hour's notice, to be occupied, so far as practicable, in grinding tools, with one hour's pay in addition.

J. MACVICAR ANDERSON,
President of the Royal Institute of British Architects.

9, Conduit-street, Hanover-square,
London, W., Nov. 19, 1891."

## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting of this Institute was held on Monday evening last, the President, Mr. J. Macvicar Anderson, in the chair.

On the recommendation of the Council, it was resolved to admit to alliance with the Institute the following non-metropolitan society, viz., the Dundee Institute of Architecture, Science, and Art.

The second general meeting for the session was then held, the President in the chair.

The minutes of the first ordinary general meeting of the session having been read and confirmed,

The Secretary read a letter from the Secretary of H.M. Office of Works in reply to the resolution passed at the previous meeting of the Institute as to the injury being done to the architectural effect of the river front of Somerset House by the erection of some new buildings for King's College. The letter said that the First Commissioner of Works would take due note of the Institute's resolution, and that he was in communication with the Council of the College on the subject.

The following gentlemen were then balloted for and elected, viz.:—

As *Fellows*:—Messrs. R. M. Fripp, Vancouver, British Columbia; W. N. Pogson, Madras; F. Clark, Darlington; W. J. Moscrop, jun., Darlington; R. F. Vallance, F.S.I., Mansfield; J. W. Walmisley, F.S.I., Southsea; C. Palmer (Associate), Hong Kong; W. S. McClelland, M.Inst. C.E., Bombay; A. R. G. Fenning, London; F. Redfern (Associate), Leicester; C. Reilly (Associate), London; J. O. Smith (Associate), London; and Mr. S. R. J. Smith (Associate), London.

As *Associates*.—The meeting then proceeded to elect, under the terms of By-law 9 (*b*), the following candidates who desired to be admitted, viz.:—Messrs. H. E. Mallet, Exeter; H. S. Fairhurst, Blackburn; A. E. Bartlett, London; E. A. Young, London; A. R. Mayston, Norwich; and O. Fleming, London.

What was announced in the programme of the Institute as a paper on "Modern Egyptian Buildings," by Mr. H. Favarger, then followed, and turned out to be merely a description of the erection of one exceedingly ugly hotel, "Mena House," under the shadow of the Pyramids of Gizeh, and which, however convenient to visitors to the Pyramids, is a sad blot, in point of view of association, on the neighbourhood of the Pyramids and the Sphinx. We may extract from the abstract of the paper the remarks on modern methods of building in Egypt. There are, according to the abstract, firstly the mud buildings, which were constructed of mud bricks dried in the sun, the binding material being also mud. The work was done with as little moisture as possible, and made a warm, comfortable house, and the settlement, though considerable, was even. Secondly, stone and mud building, which was a favourite method with the Arabs in districts where fuel for making lime was not easily to be obtained; and it was surprising how long such buildings lasted in Egypt. Thirdly, rubble-ashlar buildings of stone and lime, with courses of bricks every 2 ft. to give a fresh level to the work and equalise the pressure on the walls. Having dealt with the qualities of limestones, lime, sand, timber, and other materials to be obtained in Egypt, Mr. Favarger turned to the question of labour. The workmen were almost entirely Arabs, directed by European foremen, and he remarked that it was curious, although Greek, Italian, Maltese, Turkish, French, and German artisans were employed, not a single English craftsman offered his services during the building at Mena House. Among the Arabs a few clever and intelligent masons and carpenters were to be met with, but the majority were indolent and ignorant, and difficult to deal with. For rough labour, the Arab was not unsuitable, properly supervised. The children, both girls and boys, were extremely quick and strong. Of plumbers, there was a sad lack, and the Maltese who did the work had almost to be taught how to use his tools. Blacksmiths and engineers were fairly intelligent, and were generally Italians or Germans.

Mr. R. Phené Spiers, in proposing a vote of thanks to Mr. Favarger for his paper, and for the lantern-slides with which it was illustrated, said it was a curious thing that, as shown in some of the views thrown on the screen, the modern Egyptian builders adhered to the ancient traditional methods to a great extent, as was shown, for instance, by their preference for inclined planes instead of ladders for carrying up their materials. This modern practice recalled the account given by Herodotus of the construction of inclined ways up to the top of the Pyramids for the purpose of rolling-up the stones. There was no detailed record of the way in which such large masses of stone were raised, but the ancient Egyptians probably made temporary inclined ways resting on mounds or bags of sand, afterwards removed by myriads of children. Some years ago, when he was in Egypt, he was rather surprised to find, on visiting the works for the construction of a railway from Cairo to Siout, that although the contractor had provided wheelbarrows, the boys and girls preferred to transport the material for a raised embankment in sacks or baskets, or even in an old English hat.

Mr. Thomas Henry, in seconding the vote of thanks, spoke of the comfort of the Mena House, and of the admirable way in which it was planned.

The Chairman having said a few words, the vote of thanks was agreed to, and Mr. Favarger made a few observations in reply.

The meeting then terminated.

## THE ARCHITECTURAL ASSOCIATION:

### THE PLANNING AND CONSTRUCTION OF AMERICAN "FRAME" (OR TIMBER) HOUSES.

THE usual fortnightly meeting of the Architectural Association was held on Friday, the 13th inst., in the meeting-room of the Royal Institute of British Architects, Conduit-street, the President, Mr. F. T. Baggallay, in the chair.

The minutes of the previous meeting having been read and confirmed, the following gentlemen were elected members of the Association, viz.: Messrs. S. W. Curtiss, L. Walmisley, G. H. Manning, W. E. Tower, Ernest Youatt, F. Catling, J. K. Bateman, J. Allen, P. H. Nowell, R. E. Bennison, A. Wood, M. S. Hack, and A. Nicholson.

Mr. E. S. Gale, senior Honorary Secretary, announced the names of two further donors to the general fund for the educational scheme of the Association, viz., Mr. James Gandy and Mr. T. H. Watson. He proposed a vote of thanks to the donors, which was carried by acclamation.

The Chairman said that no further nominations having been made for the vacant office of Vice-President of the Association, he would ask them to re-elect Mr. Farrow.

Mr. Farrow, having been re-elected by acclamation, briefly returned thanks.

Mr. C. H. Brodie, A.R.I.B.A., then read a paper on "Frame Houses." In the course of some introductory remarks he mentioned that he spent the winter of 1887 and the spring of 1888 in the United States. During that period he passed a considerable time in both New York and Chicago, and visited Boston, Baltimore, Philadelphia, Washington, Pittsburgh, St. Louis, Kansas City, Milwaukee, St. Paul, Minneapolis, and many smaller towns. While in the States he, of course, made some notes as to the planning and construction of an every-day American dwelling.

Such houses (continued Mr. Brodie) are the type of American homes,—no matter whether you go to the north, south, east, or west. In the actual town areas the erection of timber houses is now forbidden,—as you may naturally enough suppose when I tell you that the fact that they were not at that time tabooed accounted for a loss of some 40,000,000*l.* sterling caused in Chicago alone by the great fire there on October 8 and 9, 1871. This fire practically cleared three and a-half square miles of the best and busiest portion of the city, and destroyed something like 17,500 buildings.

Still, in the Southern States universally, I am told, and over the country and suburban districts which I saw myself, it is rarely that any but a timber house is erected.

And the reason for this is simple. In the first place directly a man is well enough off to live out of town he buys the freehold of a plot of land. On this he wishes, of course, to build a house,—not to last all time, but to last his time, and, perhaps, also that of those immediately following him. He wants it, too, "right now" as he would put it, and "don't want to wait a year or so" before taking possession. On special inquiry I am told by an architect of much experience that the average time for erecting a frame house is ninety days, but he has known many built in sixty days, whilst, also in answer to my question, he tells me that the life of the structures may fairly be averaged at fifty years, whilst there are very many in existence even a hundred and some two hundred years old and over.

Again, quarries being as yet worked are few and far between, and brickworks are not by any means numerous. But the country abounds with the most beautiful timber, with which even the denuded Eastern States are kept plentifully supplied by means of immense rafts floated down the great rivers to convenient points for transport by rail or boat.

A mere glance at the drawings I have here will, I think, convince you that a frame house may be very expeditiously erected. For what do the drawings show?—a basement, rising only a foot or so out of the ground, built of either brick or undressed stone, and on this a frame of what we call quarter partitions, two stories high, forming enclosure and divisions. These and the joists being fixed in position, the roof

can be immediately constructed and covered in, so that whilst the outside is being completed, the inside, too, is progressing, and during the time that we should be getting up a scaffold, the frame house is built. The plaster work being then, if necessary, dried by artificial heat, the joinery and other fittings are placed, and the dwelling is ready for occupation in the time I have stated.

Should the worthy owner's family increase,—as families do even in enlightened America,—additions to the house are just as easily and expeditiously made.

And now let us look at the plans. As I have said, these show a basement and two upper stories, and the roofs being mostly of a steep pitch, plenty of room for attics is obtained in them.

The basement contains a laundry, beer and wine cellars, coal ditto for both house and furnace coal, larders, and—most important perhaps of all—the heating chamber, containing either a boiler for steam or a furnace for hot-air heating. The heat there generated is distributed by ducts quite evenly over the whole house, and many of the rooms, you will observe,—in fact, most of the rooms,—have no fireplaces. This is a stage of civilisation to which we, I regret to admit, have not yet generally attained. To warm by direct radiated heat a space of about 10 ft. square, or less, with an enormous expenditure of coal, seems to be still our ideal. I do not mention the beautifully heated column of air, &c., extending vertically above the fire, because the occupants of the house do not get the benefit of the heated air, although those outside do get that of the, &c., —much to their sorrow at times.

But still we have that proud possession of our race, the "domestic hearth," so let us freeze in our staircases, passages, and even bedrooms, and continue, by our actions at all events, to wish long life to both fog and soot.

Where fireplaces do occur, and this is chiefly on the ground-floor, an ashpit is provided under each, into which, when the hearth is swept up, the ashes, &c., are dropped by moving a dump or hopper. These ashpits are marked on the basement plans.

The ducts of which I have spoken serve in the hot weather to distribute cold air over the house, the air in the cellar, whence they start, being naturally cooler than that outside, whilst it can, if necessary, as it frequently is, be cooled still further by artificial means.

On the walls you will see a sheet of illustrations of hot-air furnaces, and also of steam-radiators, cut from advertisement sheets. The form of the latter has become familiar to most of you during the past two years from their frequent introduction into theatres, &c., whilst it would take an engineer to fully explain the former.

Coming to the ground-floor, or "first story," as you will notice the plans have it, we find a parlour and dining-room, and also perhaps a library or a second parlour. The dining-room is always in connection with the kitchen through a lobby or pantry. You will note also that there is no scullery shown, although on some of the plans is a diminutive space marked "sink-room."

On this floor are also various store-rooms and closets, w.c.'s, lavatory, &c., depending as to size, number, and variety on the general dimensions of the house.

And here I would call your special attention to the very complete way in which these, like all classes of American houses, are fitted with cupboards, shelves, drawers, sideboards, book-cases, &c.,—all conducing in so eminent a degree to the comfort and ease of the occupants.

I venture to think that in this respect, too, we are much behind our over-sea cousins, and even when designing for them our architects seem to avoid consideration of such real necessities. Take, for instance, a design hung on the wall by one well known to most of us. There are but two cupboards on the ground floor, and two in the attics. The four principal bed-rooms have none. Now, I can assure you that no bed-room that I occupied in any private house in the States was without a cupboard large enough to walk into and turn round in. The convenience of this is too obvious to need expression.

The hall is always furnished, and used as a room; you will see most of the plans have it designated "reception-hall," and some even "sitting-room." The verandah is also a most important feature, and one never omitted. During the hot season it is enclosed with blinds, and becomes the most frequented part of the house,—even the lighter meals being served on it.

The first floor has the usual bed and bath rooms, linen closet, &c. You will observe that in most cases the w.c. apparatus is kept away from, and not, as with us, next to the outside walls. This is to avoid fracture by freezing during the intensely cold weather. I may here tell you that in Chicago I have passed several weeks with the thermometer all the time many degrees below zero. At St. Paul, the week before I got there, the thermometer had gone down to 40 deg. below zero, and yet in that district this is but little felt, as there is a total absence of wind,—a happy case in which Chicago never shares,—it is known, in fact, as the windy city. I was in New York the day of the great blizzard, and had to go to and from my office on foot, after scrambling down from the elevated railroad. I show some photographs of the effect of this blizzard. It is a little disconcerting to an Englishman to go home to tea, and, being on the opposite side of the street to the house which, in that case, he is so desirous to enter, to see a bank of snow, extending from the footpath he is walking on to the first-floor window-cill of his domicile. We get weather here, and some of us grumble at it perhaps, but other places share an even worse fate.

To return to our first-floor plan. You will note that all the chief bedrooms have a fixed lavatory fitting, generally in a cupboard, so as to be out of sight. This adds, of course, very considerably to the plumber's bill, but in the long run it is a great saving, for labour of all kinds is terribly costly, and this is especially the case with what is called domestic "help"—even if such is obtainable at all. See what is saved annually in breakages, and in the labour of carrying up clean and taking away dirty water.

Balconies are freely provided on this floor, and are delightful spots in the hot weather, whilst they always form a feature in the elevations.

The attics are used for servants' rooms,—each still with a cupboard, you see,—box-rooms, store-rooms, &c., or the space is frequently just floored and then left to be cut up as the wants of the occupants may later on suggest.

About the elevations, outside and in, or,—to adopt the cant phrase now happily less and less heard,—the artistic part, I shall say nothing, except that, to our eyes, at all events, the calm and dignified treatment of the English example contrasts very favourably with the fussiness and, if I may use the term, over-picturesqueness and evident striving after "features," which spoils so many of the other designs.

One must remember, however, that in dealing with such a pliable material as wood, the temptation to let off all one knows is undoubtedly a strong one.

And now as to the construction. This you can study at your leisure by referring to a specification printed in blank, which is in the Institute Library. It is indexed under the name of the publishers, Messrs. Palliser, of New York, to whom I am indebted for a good deal of the information this paper contains, and for a drawing and specification hung on the wall. Some books published by this firm can be obtained at Batsford's, if you wish to pursue the subject.

From the specification I have mentioned I have taken rather copious extracts, which I fear it would be tedious to read or listen to, but I was certainly struck with the very practical character of most of them. For instance, among the general clauses I read:—

"The carpenter will make all patterns, &c., and will provide suitable protections to all openings to keep out the cold, rain, &c., and will clear the building of all carpenters' waste materials before the plastering is commenced.

The mason must provide coal and stoves in cold weather for heating the building while his work is going forward and until it is dry."

Continuing, we shall get particulars as to how this class of house is put together, and we naturally find after the general clauses the necessary directions as to the excavations. The only unusual point here is that I read: "The bank is to be dug well away from the walls, and left open until the walls are set and dry." Then the footings are described. They are for both brick and stone walls, "large flat stones not less than — in. thick, and projecting — in. on each side of the wall above, and to be laid on the natural undisturbed earth." Their width and thickness would depend, of course, on the weight to be carried and the nature of the soil.

The damp-course is to be either slate and cement or asphalte.

The brick walls are required to be built to

"a true line from one end to the other, even to the cutting of a brick where necessary, so that the carpenter can size the joists to an exact width, and place them directly upon the wall without blocking up with chips or pieces of wood."

The facing of these brick walls is to be "neatly tucked and properly cleaned down with aquafortis, and oiled with raw linseed-oil at completion," care being taken not to injure, in cleaning down with the acid, any cut stone-work.

The laths for lathing are to be "laid a full quarter of an inch apart, and joints broken every 18 in."

Wood laths, however, are now rarely used. I never saw any at all. The plastering is put on wire netting, or one of the many forms of pierced or expanded metal now coming into use in this country.

The plastering is to consist of

"A good coat of brown, well-haired mortar, made of pure unslaked lime and clean, sharp, bank-sand, free from loam and salt, and best cattle or goat-hair, well mixed by continued working, and stacked in the rough for at least — weeks before putting on."

The finish is to be "a coat of best soap-stone finish, manufactured by the — Company, composed of finishing-lime putty (two parts), and patent soap-stone finishing (three parts), thoroughly mixed two days before using, and applied in the most careful manner as per directions,"—I suppose of the manufacturers.

I am, of course, following the order of the trades as they are placed in the specification from which I am quoting. This differs considerably from our usual arrangement; and we next come to the carpenter and joiner.

All the timber which will be exposed at the finish is required to be of a certain quality pine. The joists are to be placed in all cases with the "crowning" edge upwards, and those over so many feet in length are to be "worked crowning" so many inches before being placed in the building.

Describing the partitions,—a most important item of a framed house,—the specification directs that "all door and window studs are to be set double, and all openings over 3 ft. wide trussed overhead. All angles must be formed solid by blocking and spiking two studs together. No studs are to stand on the floor, nor on the joists, if there are partitions under, but all are to foot on top of the partition-plate below."

The outside of the external partitions, and also the roof, is covered with $\frac{7}{8}$-in. match-boarding, called "sheathing," which has to be "nailed at each edge at every bearing with 10d. nails."

Here I may say that nails are throughout the specification described as so many "penny" ones,—a nomenclature common also in Ireland, I am told.

The whole exterior is then covered with waterproof felt, the joints lapping 2 in., and it is carried under all architraves, friezes, cornices, brackets, &c., "so as to make a perfectly tight job."

Outside this felt comes the finish which is actually seen, which on the partitions is weather-boarding, or, as it is called in the States, "clap-boarding." This is to be of "clear, dry, bevelled, white pine, 5 in. in width by $\frac{1}{2}$ in. thick at the butt, and $\frac{3}{16}$ in. at the thin edge, laid with not less than a lap of $1\frac{1}{4}$ in., and nailed with 8d. box-nails every 16 in. The nails to be set in."

The verandah floor is to be constructed with $1\frac{1}{4}$ in. by $3\frac{1}{2}$ in. white pine boards laid with "paint joints."

The roof is generally covered with shingles, and so also are the gables and other features. The shingles are usually of cypress, which grows abundantly in the swamps of New Jersey and the more southern States. The logs are floated down the rivers to the various mills, where the shingles are cut in enormous numbers. I read of one mill cutting 300,000 daily. They are about 18 in. by 6 in., and are fixed on battens, with on roofs $5\frac{1}{2}$ in. to the weather and on vertical parts 6 in., each nailed with two nails and kept 3 in. from angle of valleys.

Sometimes the roofs are of slate, and frequently they are flat, in which case they are mostly covered with tin, although asphaltum or gravel composition is sometimes used. In either

case the roof is boarded on the joists, with ⅞ in. boarding.

Coming to the floors, I find that pugging,—or, as it is called, "deafening,"—is used to all the best rooms, and these have also a double floor,—a rough deal one, and a hardwood finished one, with between them a layer of "all-wool, Pyramid-brand, rosin-sized, deafening felt," fixed down by 2 in. by ½ in. slips, to which the hardwood floor is secret-nailed.

The rough floor is described to be fitted carefully round all studs, &c., up to the sheathing, so as to prevent mice circulating.

Here is a good clause:—

"All the plastering is to be finished, cellar cemented, and all mason work done and thoroughly dried through before any of the interior finished joinery is brought into the building or put in position."

The materials used for doors are required to be thoroughly seasoned and kiln-dried, and on the plans the sizes for both width and height are figured. Sliding doors are much used, while many openings have no doors at all; these would be provided with curtains, which give the desired privacy. There is no question of "draughts," you know, in an American house, which is warmed equally throughout. All the doors have a hardwood slip ¾ in. thick, splayed each edge, fixed under them. This enables the door to open clear of carpets, &c.

The windows are mostly double-hung sashes, requiring no special description. All are directed to have a burglar-proof fastening.

After a description of the stairs, most minute directions follow for the fittings of the various pantries and closets upstairs and down. These include clothes-closets, linen and china ditto, and butler's and kitchen pantries, as well as the various store-rooms. The descriptions are most interesting, but would, I fear, take too long to read. Then we get a full description of the refrigerator and ice safe, which consists of two thicknesses of boarding, 2 in. apart, filled with mineral wool, then an air-space of 1 in., and a layer of rosin-sized waterproof paper, the actual inside being of clean, narrow, matched spruce. The lower part is the ice-safe or tank, and it is lined with sheet zinc, and the bottom covered with a wood grating to prevent the ice cutting the metal. The doors to these spaces are constructed in precisely the same way, and the joints between door and frame are double rebated.

The wood finish is described to be first a certain patent "mineral filling," and then another "patent transparent wood finish."

The hardwood floors are to be done in the same way, but with "vegetable" filler.

The tinwork is to be painted two coats of metallic paint, and here I may say that this tin,—or to speak more correctly tinned-iron,—is used wherever we use lead, and also for the rain-water pipes and gutters. Lead is too expensive, and is also more affected by change of temperature.

The hot-air ducts from the furnace in the basement, of which I have previously spoken, are also made of tin, and are run up in the partitions. The hot air is delivered into the rooms through a sort of hit-and-miss grating, called a "register." The positions of these are shown on the plans.

Coming to the plumber's work, I find that the soil-pipes are invariably of cast-iron, the joints being made with oakum and lead well caulked. They are painted on the outside with two coats of metallic paint, one before and one after fixing. Inside they are coated with coal-tar, or the pipes are "Mott's enamelled soil-pipe, not less than $\frac{3}{16}$th thick."

The soil-pipes are kept well within the building, the water-closet apparatus being, as I have said, away from, and not next to, the outer walls. The syphon intercepting the drain from the sewer is fixed within the cellar, and the drains generally, in fact, are inside and not outside the building, so as to be clear of frost.

The water-pipes are of lead, all so arranged that they may be run dry—also to baffle that demon "Jack Frost," and laid on wood strips or in wood troughs. And here occurs another very practical passage,—"The plumber is not to cut any timbers; that will be done by the carpenter, and he shall not cut any to weaken them." Would that we could enforce that clause on both plumbers and gasfitters!

Joints lead to iron are made with brass ferrules soldered to lead and caulked to iron as before described.

The whole of the drainage has to be done according to municipal plumbing regulations, which are very strict. They often require that all soil drains, as well as the vertical pipes, shall be of heavy cast-iron, and in all cases that the soil-pipes shall be carried through the roof full size, and left open at top, and that an air inlet shall be provided on the house side of the intercepting syphon. Also, that all sanitary fixtures shall have a trap as close to them as possible, each of which must have a back air inlet to prevent syphonage.

Brass piping is sometimes used for hot-water connexions, but galvanised wrought-iron is much more common and seems to be equally satisfactory.

As to the cost of these frame houses, one of the buildings illustrated is shown to have cost 2,935 dols., or 587*l*. This is a small house. A friend of mine writes me that he is just about building a ten-roomed house, which he says will cost from 700*l*. to 850*l*., and he puts the life of this as at least fifty years.

A very small house, illustrated and described in a local paper, is said to cost only 1,500 dols., or 300*l*.

In conclusion, may I say that I will answer, as far as I can, any questions which may be put to me; and I will vary the somewhat dry matter of this paper by quoting the dedication of a book of designs of houses of this class. Prose is evidently too feeble to properly commend the subject, so the book is inscribed:—

"To those who happy homes have always known,
To those who plan and work such homes to own;
To all who building homes would bless mankind,
To all who in their homes a refuge find;
To youth, whom wedded life will soon employ,
To children dear, each day their parents' joy;
To all who favour honour, truth, and love,
To all whose virtues promise homes above."

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Mr. Owen Fleming, in proposing a vote of thanks to Mr. Brodie, said that the paper had been so full of little practical hints that it was difficult to touch upon them all. With regard to the drainage of the American frame-houses, from Mr. Brodie's paper it appeared that there were no disconnecting or intercepting chambers provided. Mr. Brodie had spoken about the air-inlet being on the other side of the syphon. Could he give any further explanation of these arrangements? He had also remarked that the hall of an American house was generally used as a room. At first it seemed to him (the speaker) that the interiors of American houses, judging from the drawings, must be very artistic; but when he heard that all the woodwork was stained and varnished, he did not think so. Mr. Brodie had dealt almost entirely with the planning and construction of framed houses, from some of which, although such buildings could not be erected in this country, something might be learned as regards design. From some of the designs they could not learn anything, but others were well worth study, for the idea of the architect seemed to be to erect a simple building. There was a simple front, with a plain, simple roof, with bold lines, not all cut up into little bits. It seemed to him that if we in England tried to observe that method in our buildings—to keep our walls and roofs plain, and to make our buildings, in short, practically an intersection of great planes—we should get better buildings than by always cutting them up into a number of fussy little gables and chimneys. He thought that what was needed in English architecture was simplicity. Another good point in the American frame-house was its broad, strong proportions. He thought that it was much better to get the effect of something sturdy and strong in their buildings than to produce some attenuated, weak-looking structures, such as were to be seen in the present day. Details were also kept simple. He always thought that they should never put up anything unless it was really wanted, or unless they decorated simply something that had a constructive or utilitarian purpose. It was very interesting, he thought, to observe how the Americans showed taste in their country houses. That taste was not shown in their town houses, nor in their churches; but in those little country buildings there was much quiet taste shown. From the point of design, he thought there was nothing more excruciating than the modern country houses of France and Germany.

Mr. Horace Townsend, in seconding the vote of thanks, said that as an English architect, or rather as one who was formerly an architect, and as one who had passed some twelve years in the States, possibly he might be able to add a few remarks to the paper, and to elucidate some points which, apparently, had not been apprehended. With regard to the strictly artistic side of the question, he regretted that Mr. Brodie could not deny himself a little hit at the fussiness and over-picturesqueness of American architecture. He (the speaker) was rather tired of hearing that phrase, which had a sort of damning-with-faint-praise effect,—a kind of criticism which was, he thought, too much in vogue over here. English architects were accustomed to judge of American architecture simply by the illustrations which they occasionally saw in the American architectural journals. He thought that that was very unfair, for he did not think that the American architectural journals represented American domestic architecture in the same measure that the architectural journals over here represented English domestic architecture. The best American architects—they were few, but quite half-a-dozen—had an objection, based upon various grounds, to allowing their works to be illustrated in the ordinary fashion in the architectural papers, and, in consequence, the best American work was not illustrated. So far from the best men inclining to fussiness or over-picturesqueness, he thought that if they had a fault, it was in the other direction. They rather made a virtue of restraint, as it were; and there was, he thought, a sort of artificial simplicity which became a fad and an affectation, and which was almost as great a fault as over-picturesqueness. The men whom he spoke of took as their models the old Colonial buildings, which were simply Classical buildings, in most cases entirely constructed of wood, and employed Classical forms,—in a false way, certainly, according to the old canons which prevailed when he was a student, because they concealed construction,—but in their case the end justified the means. As to the more practical points in the paper, Mr. Brodie had said he did not know what "fillers" for hard woodwork were. A "filler" was simply a composition applied to the surface of the wood, which filled up the grain, and allowed the painter to bring it to a smooth surface for polishing and varnishing. What it was composed of he did not know, but he thought that whitelead was the basis of it. The great use of tin for roofing purposes, instead of lead, must always strike a stranger to the States; but, as Mr. Brodie had said, it was not really tin, but tinned iron, which was used. It was cheap, and lasted a good many years when painted, but as soon as the paint got abraded, and the tin surface also, allowing the water to get to the iron, it rapidly rusted into holes. A "tin" roof required attending to every four or five years, but it cost comparatively little, and, on the whole, he thought the use of tinned-iron was an economical method. The refrigerator which was found in every American house was not used to produce iced water only, but really to keep meat, and even vegetables, from decaying. A refrigerator was a most important part of an American house. It was only lately that the refrigerator had been built into the house, and he thought it was a mistake which the best architects were finding out. A refrigerator only lasted a few years, for, in the course of use, it became "smelly," and had to be broken up. As a rule, the ice was kept at the top, not at the bottom. Mr. Brodie had referred to the hard-wood cills to the doors of the rooms as an excellent institution, and so it was; he (the speaker) was very conscious of that, for he had just taken a house, and had found that every door had to be taken down and the bottom planed so as to allow it to pass over the rugs. He was sorry that Mr. Brodie had relied so much upon the publications of the Messrs. Palliser, who were very energetic and worthy gentlemen, who had tried to make architecture a very popular art indeed by issuing plans, elevations, and specifications of a house for 50 cents, and allowing people to try and build for themselves, and to be their own architects. That system had led to the erection of some very awful buildings. The figures they gave, too, had to be accepted with a great deal of reserve, for they ran, as a rule, from 25 to 30 per cent. below actual prices, as he had been given to understand by several who had relied upon them. Mr. Brodie might have said a word or two about the fittings of the kitchens in American houses. There were no sculleries, for the kitchen usually comprised the scullery and everything in one. The kitchen had a sink for washing dishes, larger and of better description than any which he had seen over here. It

was of enamelled iron, as a rule, and was very cleanly; it was much deeper than the shallow sinks in use here, which allowed the water to be splashed in all directions. In close proximity to the sink in most kitchens were the wash-tubs. In most American households the washing or laundry work was done in the house, and wash-tubs were provided in all houses, and were very well contrived. They were about 18 in., or sometimes nearly 2 ft. deep, with sloping sides, and provided with hot and cold water and a large grated outlet. There were usually two or three of them in a kitchen for holding the two or three waters required in washing. They were good things, and he thought they might very well be introduced in some small English houses. As to Mr. Fleming's remark, that Americans had displayed no taste in their town architecture, he (the speaker) thought he was altogether wrong. That was another instance of the damning with faint praise and speaking in a patronising tone which prevailed here. It was a great mistake, for the Americans were the coming people in architecture. They were standing alone, and were no longer in the position of clever children who were to be helped along. Their church architecture, he must admit, was bad as a rule, although there were some notable exceptions even to that rule. He thought that the exterior of Mr. Richardson's Trinity Church, Boston, was absolutely one of the finest ecclesiastical buildings of the present generation. Some day that would be admitted on this side of the Atlantic, as it was on the other. But many of the American town buildings were very good, and certainly showed much taste, although they did not show as much knowledge. Their detail was very often weak, but for grasp of the salient features of a design, and for massing, and for applicability to their purpose, he thought that many of the American city buildings need ask quarter of no architectural school.

Mr. F. T. W. Goldsmith, in supporting the vote of thanks, said the last two speakers had touched upon the artistic section of the question, and he proposed to say a few words with regard to the constructive part. Mr. Brodie was very wise to confine himself chiefly to the practical and economical problems which he had seen worked out in American architecture. The Americans were, no doubt, the coming architects. They had no ancient architecture of their own, and had gone all over the world to collect suggestions for the architecture of the present day. They had wants which had never arisen in any nation before, and they had materials at hand which they had had the boldness and sagacity to use. American architecture was the outcome of American wants, and the American architect had solved modern problems in his own way. A leading characteristic of American house-planning was the clever arrangement of the rooms for the purpose of economising labour, which was very dear in the States. Cupboard space was one of the main features, for there would seem to be cupboards in every room in the house; and their system of hot-air heating which had been praised by Mr. Brodie must necessarily be fruitful in economising labour, though not so desirable as the ample provision of cupboard space was. Although the American architect was not heedless of his elevation, he was particularly careful about the internal arrangements of a house, and he (the speaker) thought that they should imitate that example to the best of their ability. The public would think much more of them if they paid more attention to the minutiæ of planning and providing for all domestic wants, and he would urge everyone to attend to the refrigerator question; but notwithstanding Mr. Townsend's remark on that point, he believed in building the refrigerator into the house. It appeared to him that the typical American elevations were the result of the fearless way in which the Americans had used their materials,—utilising the boulder-stones and timber which they found at hand. In many designs of good American work he had noticed that the architect had, in some prominent corner, or bay, or in some part of his elevation, just put in, apparently with a love for the old country and the old art, a little bit of Classical work, which gave a wonderful piquancy to the design. The American framed houses of the present day were but a development of the old Dutch or Colonial houses. He could not agree with Mr. Brodie in his attack on the domestic hearth. It was much better to see the heat and get some of it, than not to see any heat but to get it all. If they tried to improve the domestic hearth and see what they could do to consume the smoke, and utilise the fuel and heat as much as possible, he thought their energies would be better spent than in condemning it. He thought it was an abomination to attempt to entirely heat a house by hot air. He should like to ask one question: If the air in a house were made very hot, and the air outside so very cold, what protection was taken in the American frame house against the inrush of cold air when a door was opened? Was it allowed to rush into the hall and then get warm, or were there doors in the hall to keep it out? With regard to the constructive items of specifications, there was one point connected with the elevations which was eminently practical, and that was the combination of the shingle and the clap-boarding. He thought that Mr. Fleming would not object to the stained wood if he could see it. American wood-staining work was very different from the stained work in London houses. With regard to Pallisers' book, he was very glad that Mr. Townsend, who had lived in America, had stood up in that room and told them what he thought about such a production.

Mr. F. R. Farrow said Mr. Brodie would doubtless like them to look at the American houses and consider whether they could not do something of the same sort. The American framed house had certainly several advantages, one of the greatest of which was its cheapness. Therefore they were led to ask how it was that houses of a similar kind had not been built in England within recent years. For they must remember that in the early part of this century, the erection known to the American as the framed house was a very common method of building houses in England, and was not an American invention at all. There were plenty of these houses still left in England, and he could show them an example of that form of construction within a couple of miles of Conduit-street. They were led to ask how it was that Englishmen had abandoned that type of house, and in what respect our conditions differed from those in America. The first objection to the framed house, and one which had, he thought, led Englishmen to abandon that method of construction, was the danger from fire. Mr. Brodie himself had pointed out how serious a matter that was where there was a congregation of buildings of that character. Then, again, in our English houses we always needed fireplaces, which necessitated the use of a certain amount of brickwork, which still further complicated the structure. Another objection to the framed house was that under our usual system of tenure of house property, the framed house, with boarded exteriors, entailed a very large expenditure every three years for painting and repairs. Another point which they should avoid imitating in the American planning was that of heating by means of hot air instead of the open fire. The reason why Englishmen had adhered to the open-fire system was because the atmosphere of this country differed from that of America. The air in America was very dry, while ours was very damp, and it had been shown by recent experiments that radiated heat was far more effective in a damp atmosphere than it was in a dry one. The disproportion between the effectiveness of heating on the American method and the radiant heat method was far less in a damp atmosphere than in a dry one. With regard to the artistic qualities of American designs, the Americans devoted much care to their internal detail. If they looked at any illustrations of American houses, they would notice that the designers lavished their utmost thought and care upon the design of interiors. There was not a large amount of expensive work in the designs, but there was evidently a very large amount of thought. To his mind that was one of the greatest charms of American domestic work. Another point was that the American architects in the highest ranks of the profession had learnt one important lesson, that if they wanted a good artistic effect they must concentrate their ornament, and make it of the very best kind where it was used, leaving a mass of plain surface to act as a foil, and to show up the ornament which was put in. Such a method was to be found in all the best work of American architects, not only in framed houses, but also in stone buildings. Then, again, the American architects had given great attention to surface texture. They had evidently studied texture in the treatment of such a simple material as wood. The alternation between the surface textures of clap-boarding and shingles was effective in every way; and the effect of texture was also well studied in their stone treatment. If any of them wished to see an example of the effect produced by American stained woodwork, they might do so by paying a visit to Professor Herkomer's studios at Bushey.

Mr. W. H. White, in supporting the vote of thanks to Mr. Brodie, said that he thought the details of the plumbing work, contained in the specification quoted in the paper, were open to strong criticism, the wastes of bedroom lavatories, for instance, being led into the soil-pipes. He was glad that the English hearth had been defended; but in large rooms it might be supplemented by heating-coils, which should also be provided in halls, staircases, and passages, which were the lungs of a house as well as its thoroughfares, and should be warmed in winter.

Mr. E. Woodthorpe, referring to such temperatures as 40 deg. below zero, mentioned by Mr. Brodie as being sometimes experienced in some parts of the States, asked how it felt in bed at three or four o'clock in the morning with such temperatures? In other words, was the heating-apparatus kept going all night, so as to keep up the necessary warmth?

The President, in putting the vote of thanks to the meeting, said that Mr. Townsend seemed to be rather indignant that they should presume to form a judgment upon American architecture. It seemed to him (the President) that as they were perfectly free to express their opinions about English architecture, he did not see why they should not say what they thought about American architecture. It might be true that they did not know some of the best work of the American architects, but they could only judge by what they saw in the American architectural papers, and he believed that some of the illustrations which did appear in those journals were those of works by the best architects of the States. A good many of the late H. H. Richardson's designs were published, and he thought they could form a fairly-correct opinion about average American architecture from published designs, even although they did not see views of all the best work. For his part, he rather agreed with those speakers who had spoken in praise of the general simplicity of the best American work. It seemed to him that in a great deal of American country house work there was much breadth and simplicity about their exteriors, and much beauty of detail in the ornamentation of their interiors, both being points in respect of which we might learn from the Americans. Mr. Goldsmith had spoken about the cold air rushing into the house when the front door was opened; but it appeared to him if warm air was pumped into a building there was no reason why a cold draught of air should enter, inasmuch as the internal air was to some extent under pressure. The tendency would rather be for the hot air to rush out, and not for the cold air to rush in. He was interested in what Mr. Farrow said about the American frame-house being founded upon an English original, and he supposed there could be little doubt that it was so, especially as similar work existed to the present day. He thought they were also indebted to Mr. Townsend for coming down to speak to them that evening, as well as for his interesting paper on practically the same subject last session.*

The vote of thanks was then put to the meeting, and carried unanimously.

Mr. Brodie, in the course of his reply, said that, although he did not wish to praise Messrs. Pallisers' architecture, his thanks were due to them for the information which they had kindly sent him, and also to Messrs. Burnham & Root, of Chicago, who had been good enough to send him some working drawings to illustrate his subject. He also wished to thank Mr. Fleming for the opportunity which he had afforded him of looking over a large number of illustrations of American architecture, many of which were exhibited on the screens. In selecting those illustrations, he (the speaker) had chosen what he considered representative examples, and some of them, as Mr. Fleming had said, were very good. The plates gave a very good idea of the various kinds of architecture which were to be found in the States. With regard to Mr. Fleming's question as to how the drains were got at, manholes were provided in every case. The prices which he had mentioned were not Messrs.

* "The House that Jonathan Builds." Printed *in extenso* in the *Builder* for April 4, 1891.

Pallisers', but were obtained from other sources. What Mr. Townsend had said about fittings was perfectly true: the houses were beautifully fitted, and in the basements, as had been mentioned in the paper, a laundry was provided. The wash-tubs which Mr. Townsend had described were like the ordinary wash-tubs which were to be found in any public institution, hospital, or laundry in this country. Mr. Goldsmith had said that the American houses showed progress, and that the American architecture was the outcome of the people's needs. This was so, and ought to be, if it was to be good architecture. A building might be very prettily designed, but if it was not fitted for its purpose it was not architecture. He liked the domestic hearth, but he liked it supplemented by some other means of heating. In many rooms of American houses fireplaces were to be found. With regard to Mr. Goldsmith's remark about cold air rushing into the house when the front door was opened, as the chairman had said, if warm air was pumped into a house there was no inclination for cold air to come in. The air in the house was more or less under pressure, and the tendency was rather for air to rush out of a house when a door was opened than for it to rush in. He agreed with Mr. Goldsmith that the stained woodwork in the States looked very well. In America they had some beautiful woods from which the joinery was made, and it would be a sin to paint them. Framed houses could not be erected in this country, except in isolated positions on private property, as the building by-laws forbade it. On the question of fire, these houses were now nearly always detached in America, and they were very rarely built in terraces. Where they had been built in terraces, as in Chicago, before the great fire, if one got well alight it was *exit* the street. As to the position of the water-closet, the water-closet apparatus was in a big room, and was always away from the outside wall. As to Mr. Woodthorpe's question, of course the heating apparatus was kept going night and day during the whole of the intensely cold weather, or people would be frozen in their beds.

The meeting then terminated.

## Illustrations.

### DESIGN FOR STAIRCASE AND DESIGN FOR HALL.

THESE two interiors, by Mr. J. Armstrong Stenhouse, were exhibited in the Architectural Room at the Royal Academy this year, and were described and commented on in our review of the Academy drawings at the time of the exhibition. They are obviously intended as the complement of each other, the arch on the left of the hall interior being that facing the spectator in the Staircase interior; but the difference in the tone and treatment of the original water-colour drawings rendered it advisable to adopt different tints in reproducing them in monochrome.

The hall was intended to be of marble with a decorative plaster frieze: the staircase of mahogany, with solid gilding applied in parts.

### SCHEME FOR DECORATION IN COLOURED GESSO.

THIS is in reality a scale design for the decoration of a bath-room (lighted from the top), or one of the rooms of a Turkish bath, and the *motif* is to give the idea of being beneath the water; a decorative treatment of water occupying a great part of the panel, with figures floating on the top, and shells and seaweed decoratively treated at the bottom. In the original design, which is worked up in gesso in slight relief, green tones predominate, but there is a certain degree of play and variation of colour which of course cannot be conveyed in a monochrome reproduction.

The original study was exhibited in the Architectural Room at the Royal Academy this year, and formed a very graceful and pleasing bit of decorative design. The artist is Mr. H. W. Batley.

### A COUNTRY GENTLEMAN'S HOUSE.

THIS is the design which obtained for its author, Mr. Charles Spooner, the Royal Academy English Travelling Studentship, and the drawing was exhibited in the Architectural Room of the Academy this year.

It is a very pleasing design for a house in the style adopted, though the archæological element is perhaps a little too predominant.

### THE ROYAL ASSEMBLY HALL, SOUTH SHIELDS.

WE give the interior view of this hall, which was described in the *Builder* for February 7 last, p. 114. The building is situate in Stanhope-street, at the rear of the Royal Hotel. The principal elevation is in the English Renaissance style. Normandy bricks and Hebburn stone dressings are the materials used for external facings of walls. The hall is 120 ft. long and 60 ft. wide, and it accommodates nearly 2,000 persons. All the interior decorative work has been executed in fibrous plaster by Mr. G. G. Laidler, of Newcastle. Messrs. Middlemiss Bros., of Newcastle, were the general contractors for the work, which was designed by and carried out under the supervision of Mr. J. H. Morton, architect, South Shields.

### LIVERPOOL ENGINEERING SOCIETY.

THE second ordinary meeting of this Society for the present session was held at the Royal Institution, on Wednesday evening, November 11, Mr. John T. Wood, President, in the chair. After the ordinary business of the meeting, a paper entitled "Notes on Screwing Cast Iron, and Driving Greenheart Piles at St. Annes-on-the-Sea, Lancashire," was read by Mr. John J. Potts, Assoc.-M. Inst. C.E. These notes were taken during the reconstruction and completion of the jetty (of which the piles form a portion) for the landing of passengers from the excursion steamers, situated at the outshore end of the Promenade Pier at St. Annes. Borings on the site showed that hard clay was reached after from 8 ft. to 11 ft. of compact sand and gravel had been sunk through. The screw piles, which are all open hollow cast-iron tubes, with screw blade at bottom end 3 ft. diameter, and 6 in. pitch, were screwed through the sand and gravel into the hard clay. A description was given of the gear employed, and the precautions taken, it being tide work, for getting both the upright and raking piles to the required depth, also particulars of the mode of working, the number of men necessary for each arrangement of the gear, the time spent in screwing, the rate of progress, and the power developed in screwing the piles down. The piling-engine for driving the greenheart piles was of the usual construction, the tup being of cast-iron, and weighing 19½ cwt.

## *ARCHITECTURAL SOCIETIES.*

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—The annual *conversazione* of the above Society was held on the 18th inst. at the Edgbaston Assembly Rooms. A number of drawings, sketches, and photographs, which had been collected for the occasion, were exhibited in the rooms, noticeable among them being the water-colour drawings by Messrs. Ernest George, Phené Spiers, H. Wilson, W. J. A. Millard, and the pencil-sketches by Mr. J. Begg, Mr. G. C. Horsley, and the pen-and-ink drawings lent by Messrs. Raffles Davison, F. B. Osborn, W. Cox, and the large collection of over one hundred photographs of Warwickshire churches, taken by Mr. E. Middleton, excited a considerable amount of interest. The Association was also indebted to Messrs. Norton & Co. for the exceedingly tasteful way in which they decorated the stage and drawing-rooms, and to Messrs. Jones & Willis for some interesting examples of church furniture. The evening, which was in every way pleasant, was brought to a close by a dance.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—The opening meeting of this Society for the present session will be held on Monday evening next, when the President, Mr. W. H. Thorp, will deliver an address.

MANCHESTER ARCHITECTURAL ASSOCIATION.—For some time past it has been considered that the interests of the architectural profession in Manchester would be better promoted by being represented by one body. This having been just accomplished by nearly the whole of the members (a little under 100 persons) of the Manchester Architectural Association joining the Manchester Society of Architects, a special general meeting was held at the Diocesan Buildings, on Tuesday, Mr. J. D. Mould, vice-President, in the chair, for the purpose of presenting the prizes, passing the report of the last session, and the following resolutions:—"It is hereby resolved that the library, bookcase, and all other property of the Association be presented to the newly-constructed Manchester Society of Architects." "That satisfactory arrangements having been made for the fusion of this Association with the Manchester Society of Architects, the Manchester Architectural Association be and is hereby dissolved."

ARCHITECTURAL SECTION OF THE PHILOSOPHICAL SOCIETY, GLASGOW.—The opening meeting of the architectural section of the Philosophical Society of Glasgow took place on the 16th inst., in the Hall, Bath-street, when the President of the section, Mr. James Thomson, delivered his address. It had been said, he remarked, that the history of industrial Glasgow was written in its bridges; but he thought it was known best by its well-laid-out streets and substantial buildings. One subject uppermost in their minds at the present moment was the proposed erection of an art gallery and museum. The site which had been placed by the Corporation at the disposal of the Association for the erection of the new gallery was in many respects a most admirable one. No doubt it was far distant from the business part of the city, and very much out of the way of residents in the eastern and south-eastern districts. But this objection was rapidly in process of being overcome. The first difficulty which occurred to him was that the surroundings of the site shown on the block plan were in many respects unsuitable. The whole southern frontage of the new building would be hidden from view by several four-story tenements of shops and dwelling-houses of the ordinary kind. Then at the centre of the site the main thoroughfare took an angular direction. He thought the promoters should carefully consider the propriety of changing the site. Dumbarton-road had become a great thoroughfare, and it would be more so every year. Any important building to be erected in that neighbourhood should be made to face the best thoroughfare. By placing it in the position indicated, the building would not only have a frontage towards Dumbarton-road, but it would have a southern aspect. This need not interfere with the other elevations, as they could be treated in relief. As to the question how this change of site could be accomplished, he suggested the removal of the buildings on the triangular piece of ground to the west of Radnor-street. No matter what the expense might be for this part of the scheme it ought to be carried out. By this alteration they would secure for the building a good background, and the general features might be made to harmonise with the surroundings. In concluding, Mr. Thomson said if the promoters tried to carry out the present idea of having galleries only for pictures and music, and making the art school a secondary affair altogether, they might depend upon it it would end in failure. On the other hand, if they resolved to have a well-equipped art school it would be sure to prove a success. On the motion of Mr. Campbell Douglas, a vote of thanks was passed to Mr. Thomson for his address.

## *COMPETITIONS.*

CONGREGATIONAL CHURCH, FINCHLEY-ROAD.—The *Hampstead Express* states that Messrs. Spalding & Cross have obtained the first place in the competition for building a Congregational church adjoining Hackney College, in the Finchley-road, their plans for the church and school-hall having been selected almost unanimously by the committee.

SEA DEFENCES.—The sea has been steadily encroaching on the frontage of the parish of Lancing, Sussex, and has frequently made gaps in the road between Worthing and Lancing. The gap now extends for a distance of about 400 ft., and measures from 10 ft. to 15 ft. deep; and the frontage of about 1,500 yards has no protection against the encroachment. After years of discussion, a committee has been formed, partly of members of the Worthing Town Council and partly of some of the inhabitants of Lancing and others interested; and the committee has instructed Messrs. R. B. Grantham & Son, of London, to prepare plans and specifications for the construction of a number of groynes and other works for the protection of the frontage. The groynes are to be laid out on the principle which has been adopted on the coast between Lancing and Shoreham, and in Middleton parish, near Bognor.

## THE LONDON COUNTY COUNCIL.

THE London County Council held a special meeting on Friday, the 13th inst., the Chairman, Sir John Lubbock, presiding, to consider the question of the incidence of taxation, to which we refer in one of our "Notes" this week.

*The Water Question.*—Subsequently, on the recommendation of the Special Committee on the Water Supply, the following resolution was adopted:—

"That, upon the Corporation of the City of London entering into an agreement to pay all the costs incurred in or about the promotion of the joint Bill, in the event of such Bill not passing into an Act or of its not providing for such costs, the Council do promote jointly with the Corporation in the ensuing Session of Parliament a Bill in relation to the water supply of London and adjacent districts based upon the agreement of the 13th of May between the Council and the Corporation, and that it be referred to the Parliamentary Committee to take, in conjunction with the Special Water Committee, the necessary steps for the purpose."

Power was also given to take the necessary steps in the ensuing Session of Parliament (*a*) for enlarging the powers of the Council to expend money in making inquiry already authorised; and (*b*) for enabling the Council to pay the expenses attendant on the introduction and promotion of Bills on the water question.

The ordinary weekly meeting of the Council was held on Tuesday afternoon last, Sir John Lubbock in the chair.

*Proposed New Fire-Engine Station at Hackney.*—The Fire Brigade Committee presented a report recommending

"That, subject to an estimate being submitted to the Council by the Finance Committee, as required by the Statute, a fire-engine station be established on the west side of London-fields, and that we be authorised to make arrangements for the acquisition of a site."

An amendment to refer the matter back to the Committee for further information was moved by Mr. Lloyd, but was negatived by a large majority. The recommendation was then agreed to.

*Proposed Purchase of Hackney Marsh.*—The Parks and Open Spaces Committee presented the following report:—

"Lying on the eastern boundary of London, at a distance of 3½ miles from the Royal Exchange, and separating the portions of Homerton and Clapton, which are already built upon, from the rapidly increasing towns of Stratford and Leyton, is a large tract of marsh land, 337 acres in extent, known as Hackney Marsh. This land is in the manor of Lord's Hold, Hackney, and is subject to lammas rights. So long as these lammas rights are maintained the land cannot be built upon, but it only requires a private arrangement between the lord, the severalty owners, and the owners of lammas rights to render the marsh freehold building land. The agent for the lord has practically secured the co-operation of all the parties named, and is in a position to offer the land for sale, inclusive of the extinction of all rights. Having regard to the crowded eastern parts of London which are adjacent, and to the fact that if building took place on the marsh it would probably take the form of factories, we consider that the acquisition of the Marsh would be invaluable to the health of the inhabitants of Eastern London. So long back as the days of John Evelyn it was proposed by him, for the health of the then metropolis, to secure a belt of open space around the margin to ensure for the inhabitants a certain amount of fresh air when the outlying villages became towns through building operations. The latter has already taken place, and we consider it an imperative duty on the part of the Council to do as much as it can to secure, at any rate, a fringe of open spaces around the area of its jurisdiction. At the instigation of certain ratepayers, a memorial for a scheme for placing Hackney Marsh under the control of the Council by means of the Commons Act of 1866 was presented to the Board of Agriculture in 1890, but, having regard to the very limited powers which such a scheme would give it, and to the outlay which might eventually be forced upon it by the acceptance of such a position, the Council on September 30, 1890, decided to oppose the scheme. Having regard, however, to its desire to secure the Marsh for the public, the Council, without pledging itself to purchase, subsequently, viz., on February 17 of this year, authorised us to negotiate with the lord and the other persons interested with a view to ascertain at what price they were willing to sell their rights. Under this authority we have received and considered an offer from the agent, who is acting for the lord and the commoners, to sell it, freed from all rights, for the sum of 84,250*l.* Our Valuer is of opinion that if regarded solely as agricultural land, it is worth 40,500*l.*, but if the building element is taken into consideration, he does not consider the sum of 84,250*l.* to be excessive. We think that the Council should, however, limit its offer to 50,000*l.* If the marshes can be purchased for this price, the Council will, we think, be justified in so purchasing them; but if this offer is not accepted, then it must rest with other bodies and private individuals to further the scheme upon some other basis. We have appealed to the Vestries of Mile-end Old-town, Bethnal-green, and Shoreditch, and also to the District Boards of Poplar, Limehouse, and Hackney, to contribute towards the purchase; but whilst all practically agree in the desirableness of purchasing the Marsh, none of them are prepared to contribute except the Hackney District Board. This Board promises to pay one-fifth of the cost, not to exceed 16,000*l.* We have also appealed to the Corporation of West Ham and the Local Boards of Leyton and Walthamstow, districts which abut on or are adjacent to the Marsh outside the County of London, to contribute, but unsuccessfully. The purchase of the Marsh, however, if it can be effected at a reasonable cost, we look upon as a County affair, as it affects the health of East London, and the health of one part of the county more or less affects all parts. The inquiry by the Board of Agriculture, already alluded to, stands adjourned until December 1, to allow time for the Council to arrive at a decision. It may, however, be well to remind the Council of the result which followed the placing of the Hackney-commons, in 1872, under the late Board by means of a scheme such as that now proposed. The rights of the lord, the severalty owners, and the commoners were left untouched; but so great was the inconvenience caused thereby that, in 1884, it was found necessary to purchase them by a payment of over 600*l.* an acre. We consider, therefore, that any payment to be made for the Marsh rights should be settled beforehand, and with this view we submit to the Council for adoption the following recommendation:—

'That, subject to an estimate being submitted to it by the Finance Committee as required by the Statute, and to the Hackney District Board entering into an agreement with the Council to contribute £10,000, or one-fifth of the cost, the Council do offer £50,000 for Hackney-marsh, such sum to include the rights of the commoners, the lord of the manor, and all other owners; and that in the event of the Council agreeing to the expenditure the Solicitor do make the offer on its behalf.'"

After two or three amendments had been proposed, discussed, and lost by large majorities, the recommendation of the Committee was agreed to.

*Lincoln's Inn-fields.*—The Parks Committee reported as follows on the question of acquiring the gardens of Lincoln's Inn-fields:—

"Our attention has been called to the desirableness of securing admission for the public to the gardens known as Lincoln's Inn-fields. It is unnecessary to dwell upon the advantage which would thereby accrue to the people, and particularly the children, living in the crowded district in the midst of which the gardens are situate, as the locality must be well known to the members of the Council. We have ascertained that the gardens are vested in trustees who many years ago acquired the rights which they now exercise, and that these trustees are unwilling to surrender their rights to the Council. Moreover, it is somewhat doubtful whether the Council could, without special power, obtain possession of the fields. We recommend:—

'That provisions be inserted in the Council's General Powers Bill of next session, conferring upon the trustees of Lincoln's Inn-fields power to agree with the Council for the transfer of the trustees' powers and duties of maintenance to the Council, and upon the Council power to maintain the gardens for the use of the public, and to agree with the trustees accordingly.'"

This was also agreed to, after some discussion.

*Consolidation of the Metropolitan Building Acts.*—The Building Act Committee presented the following report on this subject, for the information of the Council:—

"We have to report that we have had under consideration a letter from the President of the Local Government Board, forwarding a draft of a Bill prepared by the Government 'to consolidate the enactments relating to the construction and use of buildings in London,' and asking to be furnished, not later than December 1 next, with any observations or suggestions which the Council may desire to offer on the Bill. We have carefully examined the Bill, and after conference with the Superintending Architect and the Solicitor have suggested to the Board certain amendments which appear to us to be necessary in order to render the consolidation accurate and complete. We have also suggested a few trifling amendments of the wording of the present law which appear to us to be desirable in order to express the evident intention of the Acts.

We have instructed the Clerk to send these suggestions to the President of the Local Government Board in reply to his letter, and to inform him that the Building Act Committee will be glad to have an opportunity of submitting certain proposed alterations in the existing law which our experience has led us to consider desirable, as the present appears to be a suitable time for an amending Bill to be introduced."

The report was approved, and after transacting other business, the Council adjourned.

## A NEW ELECTRIC BELL-PULL.

THE object of the pull here illustrated is to enable the bell to be rung by a pull or push in any direction, instead of a push in one line only, as is usual at present, and thus to facilitate the connexion of the bell with an invalid's chair or bed in any position, or with a seat in any part of the room. The method is shown in the accompanying diagram. An elastic rod of steel, R R, is set vertically with its lower end firmly fixed into a brass block B; on its upper end is screwed a brass knob K, the shank of which passes through a brass ring C C; the conducting wires are attached to B and C. A slight pressure applied to K in almost any direction other than in that of the axis of the rod R R will deflect that rod and cause the shank of the knob to touch the ring C C and make the necessary contact. This contact needs no silvering or platinising, as the knob can at any time be given a circular motion which will clean the contact surfaces and ensure the establishment of the circuit.

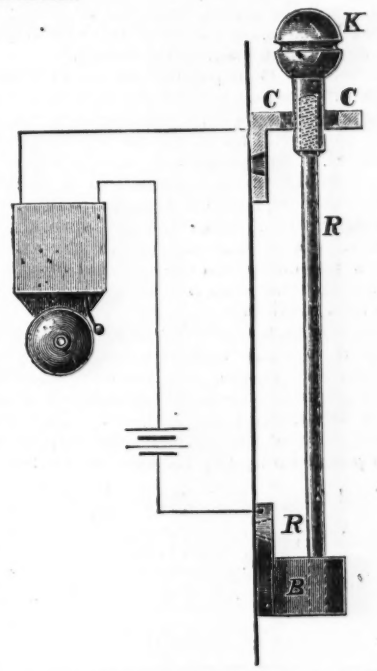


*Diagram of Major Bagnold's Electric Bell-pull.*

If it be desired to actuate this contact-piece from a distance, it is only necessary to tie a fine cord round the horizontal groove on knob K, and this cord can be led off in any required direction, to a bed, a chair, or a dinner-table. The diagram shows the action uncovered; it is covered by a boss when fixed for use.

With this action can be combined also a sound-repeater which sounds when the bell is ringing, thus avoiding the necessity of listening to hear if it has rung. The repeater does not produce the loud sound of the ordinary "chattering" bell, but only a sufficient ring to be easily heard by the occupant of the room. Messrs. Siemens Bros. are supplying the bell, under licence from the patentee, Major Bagnold.

## Books.

*Dynamo Construction. A Practical Handbook for the use of Engineer-Constructors, and Electricians-in-Charge.* By JOHN W. URQUHART. London: Crosby Lockwood & Son. 1891.

THE present work forms a companion volume to the author's "Electric Light" and "Electric Light Fittings," notices of which have already appeared in these columns. In the introduction some definitions are given, and a short sketch of the evolution of the dynamo leads up to a more elaborate and interesting account of the earlier designs and of successive improvements introduced down to the present day. As a historian we see Mr. Urquhart at his best; unfortunately, less than twenty pages are occupied with the history of the dynamo, while over three hundred are devoted to its physical theory and to details of construction and management in which the author seems far from being at home. A very slight practical acquaintance with the Brush machine would have saved him from the mistake in fig. 26, where unlike poles are represented as facing each other; and an elementary knowledge of the actions between coils and fields would have shown him that such a machine could give no electro-motive force. An alternating current dynamo, moreover, whose coils

should be arranged as in fig. 60, might be a beautiful firework, but would hardly give light in any other capacity.

Of the facility with which Mr. Urquhart handles scientific, and unscientific, terms, we get early notice. On p. 1, a dynamo is defined as "any machine moved by mechanical means, and adapted to convert the power of motion into the energy of electricity"; on p. 41, it becomes "a machine for converting power into electricity." It does not occur to him that these definitions cannot both be true; but neither are they false,—they belong to Mill's third category, "the unmeaning." Of the two, we prefer the latter, as lending itself more readily to parody: thus, "a plough is a machine for converting sunlight into bread."

After this, we read without surprise on the next page that "the current of electricity is the energy of conversion;" and that lines of force may be "dissipated uselessly as heat;" or, page 93, "to project lines of force through this gap consumes considerable energy."

Sometimes it is possible to guess what Mr. Urquhart means, as when he says that a piece of copper moving "perpendicular to the magnetic lines will be raised to a high electrical potential." The statement made is absurd, but not so the statement intended to be made. In some instances, however, conjecture fails. When we read "that a series dynamo is working at a maximum when the current in the armature equals the current in the external circuit," we are lost in wonder at a machine that can work only at a maximum.

Judging from internal evidence we are almost tempted to think that the author has never even seen a dynamo, and that the book is the result of a course of ill-assimilated miscellaneous reading on the subject. This theory would account for most of the curiosities we have pointed out, also for the formula:—

$$\text{Total magnetic reluctance} = \frac{La}{S\mu} + \frac{Lb}{S\mu} + \frac{2Lc}{S\mu}$$

in which the section and permeability of magnets, armature, and air gap are made the same. In the same way we may account for the expression "magnetically discontinuous," where "electrically discontinuous" would indicate the real purpose of the lamination of the core; and for the wonderful suggestion that continuity of current can be obtained in an alternating machine, "by the simple expedient of ensuring that there shall be a greater number of armature coils than of field magnets." But we are aware that a theory is not necessarily true because it accounts for observed facts.

After dealing with the theory of the dynamo and of its various parts, Mr. Urquhart proceeds to practical details of armature winding, and rules for the guidance of workmen. We suppose the British workman requires to be told that an armature must not be "rolled over a floor," but we doubt if there are many "electricians-in-charge" who need the hint. We think Mr. Urquhart undervalues the method of "governing by speed," and his scepticism respecting constant current is hardly justified by facts. The book concludes with an account of "typical dynamos," which has all the interest of an auctioneer's catalogue.

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*A History of Nottinghamshire.* By CORNELIUS BROWN. London: Elliot Stock. 1891.

THIS volume forms a valuable addition to the series of Popular County Histories which we owe to the enterprise of Mr. Stock. The only complete History of Nottinghamshire,—that of Dr. Thoroton,—has become so rare that few libraries possess a copy of it. Written in the middle of the seventeenth century, when property was changing hands with great frequency, it is an invaluable record of the condition of things at a critical period of our national history. Late in the following century Throsby re-edited Thoroton's work, giving special attention to the descent of families. Since that time the subject has been dealt with in a fragmentary fashion, and a large mass of information, carefully detailed, has been thus acquired. Of this Mr. Brown has made diligent use, supplementing it by many curious particulars drawn from the Public Records, now made accessible, and from his personal investigations of existing antiquities.

Mr. Brown tells us that he has spent much of the last three or four years in going from one end of the county to the other in search of material. We can imagine no pleasanter occupation, and it has certainly not been barren of results. Few counties surpass Nottinghamshire in sylvan scenery, and in the possession of noble dwelling-houses. The county town, though now given up to hosiery and lace-making, is associated with events of the highest national importance. It was here that Mortimer was taken prisoner in 1330, and Edward III. became king in reality as well as in name. It was a favourite residence of Richard III. Here, too, Charles I. raised his standard in 1642,—(not, as Mr. Brown by some extraordinary slip states, in 1634),—and the gallant Colonel Hutchinson and his no less gallant wife and biographer held the castle for the Parliament. Newark was the royalist stronghold, a town little inferior to Nottingham in interesting associations, and rivalling it in the beauty of its parish church. It has full justice done to it by Mr. Brown, whose "Annals of Newark" have met with the favourable reception they deserve, and proved his competency to act as the county historian. As Southwell has now become an episcopal See, it is, we presume, entitled to the designation of a city. Indeed, a question arises whether it has not had a right to the name for centuries past, inasmuch as Cranmer procured an Act of Parliament in 1543, declaring Southwell "the head mother-church of the town and county of Nottingham," and making it the seat of a bishopric. Dr. Cox, afterwards Bishop of Ely, was actually appointed to the new See, but for want of funds the plan was abandoned, and the Minster retained its collegiate character until its erection into a Cathedral Church in 1884.

But Southwell, though one of the finest specimens of ecclesiastical architecture in the kingdom (the Norman nave and transepts, the Early English choir, the Chapter-house, and the exquisite screen of fourteenth-century work being specially noteworthy), only heads the ample list of goodly churches which the county can show. Newark, chiefly Perpendicular, but with a beautiful Decorated spire, which attracts the attention of the passenger by the Great Northern Railway; Worksop, a fragment only of the Augustinian abbey, but a stately fragment; Thurgarton, which has undergone restoration; Stapleford, with its ancient cross "of quite unique beauty of ornament and interest of ecclesiastical tradition"; Blyth, which recalls a grandeur that has passed away; and Whatton, with its antique monuments and associations,—these are some of the structures in which the architect and the antiquary will find pleasure.

Mr. Brown draws attention to the Easter sepulchres at Heckington and Hawton,—the latter being in Rickman's opinion, one of the finest specimens of sculpture extant,—and cites, from the accounts of St. Mary Redcliffe, certain details of the mode of construction there employed: "Item.—Hell, made of timber and ironwork thereto, with the Divels to the number of 13. Item.—4 armed knights, keeping the sepulchre with their weapons in their hands,—that is to say, two axes and two spears with two paves."

It is, however, in domestic architecture even more than in ecclesiastical that Nottinghamshire is pre-eminent. Every one has heard of "The Dukeries,"—the district which, lovely in itself, derives an additional charm from the noble seats by which it is adorned. One can readily understand that a slice of Sherwood Forest must have been coveted by many a park-loving lord, and that the abbot would not be behind his lay-brother in appreciating its advantages. Two out of the three ducal mansions,—namely, Worksop and Welbeck,—were intimately connected with religious foundations,—the latter, indeed, still has incorporated in it some traces of the old Præmonstratentian Abbey. But, of course, the great feature at Welbeck is the subterranean mansion (for it can be called by no other name) which the late Duke of Portland created. There, beneath the soil, is a magnificent suite of apartments, including a library, writing-rooms, billiard-rooms, reception-rooms, a ball-room, 160 ft. long, conservatories, refreshment-rooms, and chambers of every sort, tastefully decorated, well lit and ventilated, and as dry as any building above ground. Unique in character it is likely long to remain, for the cost of excavation and construction must have been enormous. Far more pleasure is to be got from a visit to Clumber (for Worksop is a modern house, built out of the stables of the mansion burnt in 1761), which is surrounded by scenery of the greatest beauty.

The house itself (of which Mr. Brown should know Stephen Wright was the architect) does not date further back than 1772, and hardly justifies the eulogies of Throsby, who visited it soon after its erection. The works of art which it contains outshine their receptacle, which again is thrown further into the shade by Thoresby, the seat of Earl Manvers (heir to the Duke of Kingston), situated some three miles away. The original house, the birthplace of the witty Lady Mary Wortley Montagu, was destroyed by fire in 1745. It was replaced by a featureless brick mansion, which, in turn, has made way for a beautiful Elizabethan structure, built from the designs of Mr. Salvin. The long avenue of Spanish chestnuts, by which it is approached, is said to be the finest in England, and the spacious park, ten miles in circumference, contains many choice conifers as well as timber trees of grand proportions. Wollaton, though outside the radius of the Dukeries and too near to smoky Nottingham, is in many respects the most interesting example of domestic architecture in the county. Built in 1588 by Robert Smithson for Sir Francis Willoughby, it has remained in the possession of his descendants to the present time, and in the three centuries that have elapsed has undergone scarcely any alteration. It formed the model on which Sir Joseph Paxton based his plans for Lord Rothschild's seat at Mentmore, and is not far behind Longleat, Smithson's* best-known production. Of Newstead Abbey and the Byrons, Rufford and the Saviles, Cotham and the Markhams, and Cromwell and the illustrious family of that ilk, we have not space to treat. Mr. Brown is strong in family history, and all that need be known he has recorded. If his volume has some of the features of a "glorified guide-book," its utility will not suffer for that reason. Given a fine autumn or a fine summer, there is no part of England where a month could be better spent than in Nottinghamshire, and we do not know a better travelling companion than Mr. Brown's portable history.

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*Memorials of Edinburgh in the Olden Time* By Sir D. WILSON, LL.D., F.R.S.E. New and revised edition. Nos. 10, 11, 12. London: Adam and Charles Black; 1891.

THE above-named three numbers complete the issue of the new edition of this book, which forms an interesting record of the former state of a city of peculiar picturesqueness and historic interest, the old portions of which are bit by bit disappearing. The illustrations appear, from their style, to be the old blocks of the first edition; they are certainly, in an artistic sense, not up to the mark of book-engraving of the present day; but it was perhaps better to retain them, as in a good many cases they represent buildings or streets which have now disappeared or been altered, and there might have been some loss of accuracy in making fresh engravings from the old ones after the original objects had disappeared. On the whole the book is one to be recommended to those who desire to preserve some record of that "old Edinburgh" which was to Scott what old Paris was to Balzac. It is a pity old Edinburgh has not been so lucky as old Paris in having a Méryon to illustrate its ancient, dark and rickety streets and houses; but Méryons are not to be produced to order, and the illustrators of Old Edinburgh have preserved for us something of the facts, if not all the poetry, of the ancient city.

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EASINGWOLD WATERWORKS, YORKSHIRE.—On the 5th inst. the new waterworks at Easingwold, Yorkshire, were opened by Mrs. J. H. Love. Mr. Graham Fairbank, C.E., explained the works. He stated, among other things, that the supply of water is obtained from a number of bores sunk into the water-bearing strata in Hanover Field. Gaugings of the supply had been taken from time to time, which had proved it to be ample for every possible contingency. The water is conducted from the bore-pits into a collecting-chamber, whence it flows into the reservoir, which is constructed entirely of concrete, and covered with a galvanised corrugated iron roof. Provision is made for supplying the town direct from the springs by means of a by-pass during such time as the reservoir is being cleaned out. The pressure in the town varies from 53 ft. to 108 ft., being about 90 ft. in the Market-place, and is sufficient to throw the water over the highest houses without the aid of the fire-engine. Mr. Thomas Bell, of Market Weighton, was the contractor.

* Longleat is sometimes attributed to John Thorpe, but other authorities refer the work to R. Smithson, who was buried at Wollaton in 1614. Perhaps both architects may have worked together.

## Correspondence.

*To the Editor of* THE BUILDER.

### THE LATE DECIMUS BURTON.

SIR,—Can any of your readers inform me who succeeded to the practice of the late Mr. Decimus Burton, or what became of his plans? He built Holwood, Kent, in 1825, and I want to find if the present is exactly on the site of the old house.

HENRY WILSON.

*** We have never heard that any one succeeded to or carried on Burton's practice; as far as we know, he simply gave it up when advancing years indisposed him to continue active work. But it would be interesting to know what became of his probably numerous drawings.

### "BUILDERS' LIABILITIES."

SIR,—As your report in last week's issue (p. 376) of the case of Gruss *v.* Ourselves does not give all particulars, we should be much obliged if you would add the following:—

We were employed by Mr. Gruss's landlord to paint the outside, front and *back*, of the house. The room from which things were stolen was at the back, and there would have been considerable difficulty in getting ladders through the house to have painted the back sashes and frames from the outside. Besides this, we had always painted back windows from inside, this work being done regularly every year. The man had been employed by us the week before in a furnished house, and also for some time last year in furnished houses. One of plaintiff's witnesses gave evidence that, while there was a custom in the City to make references as to personal character before taking a man on, there was none outside.

CLARKE & MANNOOCH.

## The Student's Column.

### MARBLES.—XXI.

#### IRISH MARBLES.

NO part of the British Isles produces such an abundance and variety of marbles as Ireland. They are raised principally from the Carboniferous Limestone and metamorphic rocks. The former occupies about one-half the entire area of the country, extending over a great central plain 120 miles east and west from Dublin to Galway Bay, and about the same distance north and south. It forms the characteristic rock throughout the greater part of the island, and attains, in the southern counties, the prodigious thickness of nearly 3,000 feet. Owing to the number of foldings into which the Carboniferous and Old Red Sandstone beds have been bent, the limestone is frequently found disposed in trough-shaped basins. The great calcareous formation mentioned consists almosts exclusively of the shells and skeletons of marine animals of the same kind as are found in the marble-producing limestone of the same geological period in Derbyshire and elsewhere in England. There is a tolerably large literature on the marble of Ireland; indeed the building and ornamental stones of the island generally, have received much more attention than has been bestowed on the similar resources of other parts of the kingdom. But all accounts tend in the same direction, namely, that there was once a large trade done in raising and exporting the marbles, and that, with few notable exceptions, the industry has now become comparatively unimportant. Many reasons are assigned for this falling off, the principal being that the quarries are often a long distance from convenient railway carriage, and, even when this is available, the rates are extortionate. We suspect that political disturbances also have worked with full effect on this as on certain other branches of industry in the "sister isle." Nowhere in Britain do we find more enduring limestone for building purposes, or greater abundance and variety of all tints of granite; whilst Irish marbles, as a whole, compare very favourably with those of any other country, and some are unique. Let us hope that the time will soon come when capitalists will realise the importance of more fully developing the geological resources of the island.

Two of the most frequently quoted works dealing with Irish marble and building stone are Sir R. Kane's "Industrial Resources of Ireland," 1844, and Wilkinson's "Practical Geology and Architecture of Ireland," 1845. Many of the observations in those books have, naturally, become antiquated, and, as the Geological Survey of the country progressed, much additional information became available. The most complete account of the subject up to date is from the pen of the well-known Irish geologist, Mr. G. H. Kinahan, and will be found as a series of exhaustive papers in the "Journal of the Royal Geological Society of Ireland" for 1886-87. The classification of marbles adopted in this and the next article, and many of our observations, are based on Mr. Kinahan's work, to which the student is referred for more detailed descriptions.

The first water-power marble sawing-mills established in Great Britain were put up by Mr. William Colles, at Kilkenny, in the year 1730. He invented machinery also for cutting, polishing, and boring the marble; previous to that time the work was done exclusively by hand. It is interesting to note that these mills are in full working order at the present day. Water-power was used for stone-cutting in the fourth century of the Christian era, on the River Roen, in Germany, so that Mr. Colles' application was not altogether novel.

The Carboniferous Limestones capable of being worked as marble occur in various shades of red, black, grey, and other colours. The red varieties are rarely of one uniform tint, being usually more or less clouded or variegated. Some of them are beautifully veined; dull grey, white, purple, green, and yellow tints predominating. Black marbles also are conspicuous.

Red and variegated marbles are found, amongst other places, at Armagh, where the stone was at one time very extensively worked. In the principal bed the colour was a pinkish grey, which when polished was of a warm yellow colour. From this bed large blocks suitable for columns were procured; and associated with it were reddish beds alternating with clouded white. The Geological Survey memoir of the district states that at the present time there are four separate series of marbles—(1) Uppermost are 10 ft. in thickness of variegated, bluish-red stone in beds from 1 to 3 ft. thick; (2) a little below these is the "white marble," a pale, crystalline rock, forming a bed 3 ft. in thickness; (3) 2 ft. under the latter is the "shell marble," a fossiliferous bed about 1 ft. in thickness, of a purplish-brown colour, variegated with green and yellow; and 9 in. lower is (4) the "thrush marble," consisting of 10 ft. in thickness, of a mottled purplish rock, marked somewhat like the breast of a thrush.

In co. Clare, a little to the east of the Fergus, between Newmarket and the Shannon, there are beds in the *Fenestella*-limestone which have been worked as marble; but the best Irish "reds" come from Cork. These marbles are well known, and have been extensively used. They occur at Boreenmanagh, Churchtown, and Little Island, near Cork; Johnstown, near Fermoy, Midleton, and near Buttevant. The Little Island stone has been used in the Liverpool Exchange; the Manchester Exchange; St. John's College, Cambridge; the Fermoy "red" in Queenstown Cathedral, &c. In the counties of Dublin, Kerry, and Kildare red limestones are also found, but they do not appear to have been worked to an appreciable extent. The red marbles from Limerick are better known; in general, they are clear coloured, varying from shady, or coloured red to variegated grey, green, and yellow. That from Pallaskenry is of the same class as the normal Cork marbles. Brownish red and mottled grey stones were formerly worked in Longford and Tipperary.

The black marbles of Ireland are probably the best known in the market; during the last hundred years considerable quantities of the material have been exported to England, America, and elsewhere. At one time they were much sought after, but none except the very best are now in much demand; so that only a few out of the great number of quarries formerly open are now profitable. In the town of Carlow two quarries were worked, and black marble also occurs in the county near Bagnalstown, Ballynabrannagh, and Colgrenan. At Kintale, in Donegal, and Carrickreagh, near Enniskillen, the hard dark limestones have produced good marble. The finest marbles, however, now come from co. Galway. The quarries of Angliham and Menlough include some of the richest "black" ever known; the material is famous throughout the world, rivalling the so-called Noir Antique. The circumstance that one horizon in the Angliham quarry was reserved exclusively for the Metropolitan market gained for it the name of the "London" bed, preference being given to it on account of its easy working. In addition to the London market, the normal produce was largely sent to Liverpool, Bristol, Glasgow, and the United States. At the present time, the clearing and pumping have greatly increased, which adds much to the cost of getting the stone. The Merlin Park quarry, near Galway, which for many years remained idle, has been re-opened, and excellent quality "black" is obtained. Quarries exist also near Oughterard, at Gortveragh, and Creggs, and at Ballinageragh, and near Tralee, in Kerry.

The historic "Black Quarry," near Archer's Grove, Kilkenny, has been worked upwards of two centuries. There are three varieties of the stone: the "shelly black" is that usually known as Kilkenny marble; the "pure black" is hard, fine-grained, and makes good slabs; and the "dark grey" is a fairly good material. Other quarries of black marble in the county are at Sion Hill (not worked), near Monefelim, and near Thomastown. At various places in the counties of Limerick, Mayo, Monaghan, Sligo, Tipperary, and Waterford dark marbles of good quality are also found.

Grey marbles are recorded as occurring in several districts in Ireland. The Armagh "red" quarry produces a stone of a very light, whitish grey; whilst in the Clogrenan quarry, Carlow, there is a crinoidal marble, not unlike the Clonmacnoise stone in King's County. The latter material is mottled grey, and was formerly most extensively worked at the Killaloe marble works, to which they were sent by water, and are still much used by reason of their peculiar appearance. One of the beds in the Angliham quarry, previously alluded to, is a dark grey, and near that place and at Ballinasloe, superior marble of similar tone could be raised in large quantities.

Mr. Kinahan remarks that in co. Kerry trials have been made on "greys," which have been found very good; but on account of their distance from the market, and from the fact that stones of this colour are not much in request, they have not been utilised except locally. In colour they vary from a clouded light tint, or nearly white, to dark and blackish.

The "Black Quarry," Kilkenny, as before stated, produces a dark grey; and at Ballykilaboy, about four miles from Waterford, there is a good stone, capable of being raised in very large blocks, 17 ft. by 5 ft. and 2 ft. in thickness. Besides the Clonmacnoise stone, King's County has a dove-coloured marble at Ballyduff, near Tullamore, which has been extensively used in the locality. In Limerick, Longford, Tipperary, and Waterford grey marbles of more or less repute have been raised; whilst at Hall, near Moate, in Westmeath, there is a good quality grey stone splashed with white which was used in the Manchester Exchange, Bradford, and other places in England.

Various coloured marbles of Carboniferous age which cannot be classed satisfactorily with any of the foregoing are found in several counties, but they do not appear to have received much attention from commercial men.

## *OBITUARY.*

MR. GEORGE SIBLEY, C.I.E., M.INST.C.E., F.R.G.S.—The death took place on the 25th ult. of Mr. George Sibley, C.I.E., M.Inst.C.E., F.R.G.S., at his residence on Whitehill, near Caterham. Born in 1824, he was eventually articled to his father, Mr. Robert Sibley, an architect in extensive practice at that period, among whose public works we are reminded of Hanwell Asylum, Cold-bath Fields Prison, and other structures of importance in their time. But Mr. George Sibley's natural faculties were bent upon civil engineering rather than architecture, and in 1845 he joined the staff of the Bristol and Exeter Railway under Brunel, and afterwards under Sir Charles Hutton Gregory. In 1851, we find him in India upon the East India Railway, serving under Mr. George Turnbull, and in 1854 he was selected to carry out a section of the same railway from Karoo Junction to the river More, without the intervention of contractors, he and his assistant engineers performing their professional duties in addition to directing the local native labour they personally employed. On the completion of this section of the line in 1860 Mr. Sibley was appointed Chief Engineer of the North-Western Provinces division of the same railway, relieving Mr. Purser; this being 650 miles in length. Among the most important of his works is the bridge over the Jumna at Delhi, and the much larger one over the same river at Allahabad, completed in 1866; this latter was the longest bridge then in existence, being within a few feet of a mile in length, and of spans of 250 ft. each. These bridges carry the railway above their girders, and a carriage road between them. He further designed most of the bridges and stations, including the latter great one at Delhi. In 1868 Mr.

Sibley was appointed to the Engineership of the whole length of the Bengal Division of the line, of 1,500 miles, including the portion between Jubbulpore and Nagpur. In 1876 Mr. Sibley retired from active practice, and employed his repose in building himself a characteristic concrete house on Whitehill, near Caterham. Mr. Sibley has left a considerable legacy to the University of Calcutta for the founding of engineering scholarships.

## *GENERAL BUILDING NEWS.*

VICTORIA INSTITUTE, TUNSTALL.—On the 29th ult. Sir Smith Child, Bart., opened the new Victoria Institute, near the railway station at Tunstall, Staffordshire. There are three distinct blocks—the Victoria Institute, the public baths and fire-engine station, and the Volunteer armoury town yard, with workmen's dwellings, stables, &c. The Institute is a three-storied building, on the ground floor being a public reading-room and lecture-room, each 45 ft by 21 ft.; magazine-room, 24 ft. by 26 ft.; and lending library, 55 ft. by 26 ft. On the first floor the rooms are devoted to art teaching, having elementary, modelling, antique, casts and examples, and designing-rooms, together with masters' rooms, &c. The rooms for science are on the top story, and here are a chemical laboratory, fitted with working benches, &c., and having accommodation for thirty-two students, lecture-room, and various class-rooms. In the second block of buildings are a swimming bath, 78 ft. by 28 ft., eight slipper-baths, small Turkish bath, with needle and shower baths. The third block has a fire-engine house and mess-room for the brigade, house for the superintendent, and caretaker's residence. Separated from the public buildings by a short street is a recreation ground, nearly two acres in extent, planted with trees. Messrs. J. Yorke and T. Goodwin, of Tunstall, have been the contractors, and Mr. A. R. Wood, the Surveyor to the Local Board of Health, was the architect.

A NEW FREE READING-ROOM AT HAMPSTEAD has just been opened. Mr. Horace Field was the architect, and Messrs. Burford & Son the builders.

COUNCIL CHAMBER, CHESHIRE COUNTY COUNCIL.—The Council Chamber of the Cheshire County Council at Chester Castle was used by the members on the 5th inst. for the first time since its alteration. The alterations consisted of, firstly, raising the ceiling of the old room for a height of 10 ft. The ceiling, consisting of wrought iron and woodwork, was raised 10 ft. without being taken to pieces. To provide more light the iron and concrete roof of the main building was pierced by Messrs. Homan & Rodgers, of Manchester, and a skylight made in the roof, and lights formed in the ceiling below. The room as finished is about 50 ft. by 25 ft., and 24 ft. high. At one end is placed an oak screen, in front of which is the chairman's desk, and above the screen is the gallery for the press. The screen and desk are of Dantzic oak. The windows are also fitted with oak. The three lower windows are fitted with oak casements, in which stained glass is inserted, whilst all the other windows are fitted with stained glass, as well as the ceiling light. The glass has been supplied by Messrs. Shrigley & Hunt, of Lancaster. The contractor was Mr. Thomas Mayers, of Rowton. The whole of the works have been designed and carried out under the supervision of the County Surveyor and architect, Mr. Stanhope Bull.

WORKHOUSE SWIMMING-BATH, NEWCASTLE-ON-TYNE.—On the 28th ult. the Mayor of Newcastle, Mr. Joseph Baxter Ellis, opened a new swimming-bath at Newcastle Workhouse, in a building adjoining the main block of property. The bath is 50 ft. by 21 ft., with an average depth of 3 ft. 6 in., and has been constructed at a cost of 600*l*. The architect was Mr. W. H. Dunn, and Messrs. George Scott & Son were the contractors.

NEW BOARD SCHOOL, BIRMINGHAM.—The new Board School which has been erected in Floodgate-street, Birmingham, was opened on the 2nd inst. The total cost of the school is 10,666*l*., and accommodation is provided for 1,110 children. The erection of the buildings has been carried out by Messrs. Sapcote & Sons, from the design of Messrs. Martin & Chamberlain.

CATHOLIC CHURCH, NEWCASTLE-ON-TYNE.— On the 28th ult. the new Catholic Church of St. Michael and the Holy Angels, in Westmorland-road, Newcastle-on-Tyne, was opened by the Bishop of Hexham and Newcastle, Dr. Wilkinson. The style of architecture is Gothic of the Late Decorated period. Every window in the church is varied in design, and the octagonal lantern (placed at the junction of the transepts with the body of the church), with its eight windows, is surmounted with battlements and carved enrichments. The height of this is 80 ft., and it is placed at the intersection of the nave and transept roofs. In a niche rising from the top of the east window, and high up in the apex of the gable, is placed the sculptured representation of St. Michael. In the decoration of the interior of the church angels fill the windows and support and ornament the roofs. In the chancel they are represented holding the emblems of the Passion. Those on the screens and gallery front of the organ-loft, which is in oak tracery and carving, are represented blowing trumpets, &c. Angels are illuminated and fill the panels of the sanctuary roof, which is otherwise decorated with gold and colour, as are the walls of the chancel and chapels. Both north and south transepts, which terminate the aisles, are utilised as chapels, the organ being placed over a screen in the upper part of the south transept. The roofs of the church throughout are moulded and panelled at the height of 50 ft., with cornices enriched with tracery and carving. These are all of selected pitch-pine. The lantern is open to the church, 73 ft. above the level of the nave floor, the windows being filled with grisaille glass, and the ceiling decorated with gold and colour. In it, placed high up under the pendentives of the octagon, but supported on slender shafts rising from the floor of the church, are sculptured figures of four fathers of the church. The reredos at the east end occupies the whole width of the chancel. It is divided into twenty-four niches in two tiers of canopies; each niche containing a statue of a saint selected from the British Calendar. The throne and tabernacle occupy the centre position of the design. It is a composition of pinnacles, niches, and angels arranged in the outline of a spire, the total height being 26 ft. It is also cut in alabaster. The frontal of the altar is executed in mosaic on a gold ground. At the west end of the church an ante-chapel is formed by means of a wrought-iron grill or screen stretching across the width of nave and aisles. This rests on a surbase of carved and panelled oak work, with three gates admitting to the body of the church. There are two sacristies, one above the other, with staircase leading also into the organ-chamber. Heating vaults and other accommodation have been provided in the basement. The two principal windows of the church, the east and west, have been filled with stained glass. The window in commemoration of the late Rev. Canon Vanderstichele is the work of Mr. Westlake, of London. The Canon Dunn window is from the studio of Messrs. Atkinson Brothers, Newcastle, who have also executed the whole of the stained glass in the aisles and clearstory windows and the grisaille work in the tower. The contractor is Mr. L. Gaby, of Gosforth. The interior Bath stone was supplied by Mr. Jos. Bladwell, of Bath. The exterior carving was in the hands of Mr. Milburn, of York; whilst Mr. Boulton, of Cheltenham, was responsible for the interior work and for the statues. The sanctuary screens and other carved woodwork have been executed by Mr. Ralph Hedley, of Newcastle, and the hammered metal grills and screens by Mr. Cummings, also of Newcastle. The niche work of the reredos, which is carried out in alabaster, is by Mr. Beall, of Newcastle. The mosaic altar frontal has been executed by Messrs. Powell, of London, from cartoons prepared by Mr. Jos. Pippet, who has also carried out the decorations in the chancel and chapel under the direction of the architects. Mr. Richard Robinson has acted as clerk of the works. The total interior length of the church is 134 ft. and the width 48 ft., the seating accommodation being for about 700. The heating arrangements are the work of Mr. Metcalf, of Preston. The doors, the carved oak benches and south porch screen and confessional fittings are by Messrs. Thos. Walker & Co., of Hartlepool. The acme wood-flooring, consisting of parquet oak wood blocks, is by the Acme Woodpaving Company, London. The architects were Messrs. Dunn, Hansom, & Dunn, of Newcastle-on-Tyne. The church will cost nearly 20,000*l*.

POLICE COURT BUILDINGS, BOOTLE.—On the 22nd ult. the new police buildings, erected in Oriel-road, Bootle, were opened by the Mayor, Mr. J. Vicars. The plan of the building is divided into two parts, the administrative department, which includes the two courts, magistrates'-room, offices, and cells, and a living department, containing the housekeeper's rooms, police dormitories, day-room, and laundries. Upon entering the administrative block by the magistrates' entrance and vestibule, and ascending the staircase, access is gained to Court No. 2, the witnesses' corridor, and a corridor leading to the magistrates'-room, and the magistrates' clerk's department. The floor tiling in the vestibule, and also the dado tiling on the staircase, and throughout the building, is the work of Messrs. J. Stubbs & Son, of Liverpool, and the floor tiling in the other portion of the building is the work of Messrs. Woods & Son. The magistrates'-room is placed in the front of the building, and has direct access to the bench in the large court. The walls are wainscotted and the ceiling panelled. The large court is approached by a stone staircase from the side or public entrance, which gives accesses to the witnesses' corridor, waiting-room, and Court No. 2. There is also a communication with the magistrates' corridor from the bench. The fittings of this court are executed in oak. The floor is laid with wood-block flooring, and the walls are lined to a height of 8 ft. with glazed tiles. The ventilation and heating have, it is stated, been carefully considered. The Chief Constable's office is placed on the ground floor, in the centre of the police clerks' and detective department. Adjoining the police entrance are the charge office detention-room, and from thence corridors lead to the cells and airing-yard for the prisoners. This portion of the work is lined with glazed bricks, and the heating is by means of hot-water pipes. A staircase is also provided which ascends into the prisoners' dock in the large court. A recreation or drill hall is provided in the basement, also store-rooms, and a room for the heating apparatus, which has been provided by Messrs. Haden & Son, of Manchester, and the grates and chimneypieces throughout the rest of the building were furnished by the Falkirk Iron Company. The back portion of the building contains the housekeeper's rooms and kitchen. The front elevation of the building, facing Oriel-road, is of Classic design, and is faced with Minera stone. The north elevation of the administrative block is faced with buff facing bricks, and all the other elevations are faced with selected common brick, and strings and arches of Ruabon brick. The roofs are covered with blue Bangor slates and red Ruabon ridge tiles. Mr. C. J. Andersson, of Liverpool, was the architect, and his designs have been carried out by Messrs. George Woods & Son, of Bootle, the contractors.

ALL SAINTS' CHURCH, PENARTH.—The new church of All Saints', Penarth, which has just been erected at a cost of about 6,300*l*., on a site off Stanwell-road, was consecrated on the 31st ult. by the Bishop of Llandaff. The land for the church, altogether about three acres, was given by Lord Windsor, of St. Fagan's Castle, his lordship also contributing 3,000*l*. towards the cost of erection. The new church was designed by Mr. Carter, of Cardiff, the Diocesan Architect, and the contractor was Mr. Purnell, of Penarth. The building consists of a nave, 73 ft. long by 25 ft. wide between the arcades and 55 ft. between the aisle walls, with a chancel 25 ft. wide by 33 ft. long, with vestries on the south side of the chancel. The oak seats provide accommodation for 500. The side aisles are separated from the nave by arcades of five bays. The chancel is the same height as the nave, and is divided into three bays, those on the north side each containing a three-light window with stone tracery of geometrical character, enclosed in moulded arches. On the south side the easternmost bay alone contains a similar window. The other two, consisting of arches, supported by a moulded column with carved cap, open into the upper part of the vestry. The east window is of six lights.

## *SANITARY AND ENGINEERING NEWS.*

AIRDRIE AND COATBRIDGE WATER SUPPLY.—An extraordinary meeting of the shareholders of the Airdrie and Coatbridge Water Company was held at Airdrie on the 10th inst., when it was resolved to make application in the next session of Parliament for power to construct certain works necessary to augment the present water supply, the raising of the required capital of 120,000*l*., and other purposes. A draft Bill was submitted to the meeting, and was approved. It is proposed to bring the additional water supply from the parish of Lamington and Wandle, near Lanark.

LEIGHTON BUZZARD WATERWORKS AND SEWERAGE.—The Leighton Buzzard Local Board has appointed Mr. H. Bertram Nichols, C.E., of Birmingham, to carry out the sewerage and water supply works, his schemes, submitted under the motto "Forward" in the competition, having been adjudged the best by the late Parochial Committee. In the water-supply scheme it is proposed to pump the water from the lower greensand, and obtain pressure from a water-tower. The sewerage scheme is partly on the "Shone" system, four ejector stations being proposed; the whole of the sewers by this means being confined to the public roads. About half of the sewage will be raised by pneumatic power to the main outfall sewer, which will receive tributary gravitation sewers, the whole of the sewage being conveyed by gravitation to the outfall works at the north of the town. The site chosen is well above flood level, and this was demonstrated during the recent floods. The system determined upon for sewage purification is that known as the International process, adopted at Acton and other places. Precipitation tanks are proposed in three bays; the sewage water being drawn off by means of floating arms, after being treated with "Ferozone," on to specially-prepared filter-beds, in which "Polarite" will be placed, the effluent passing into the River Ouzel. The population of Leighton Buzzard is about 7,000, and the cost of the engineering works is estimated at 14,800*l*.

SEWAGE PURIFICATION AT HYDE, MANCHESTER.—On the 30th ultimo the foundation-stone of the new sewage works now in course of construction was publicly laid by the Mayor. A full account of the proceedings appears in the *Hyde Reporter* of the 7th instant. The works are designed by the Borough Engineer, Mr. J. Mitchell, to treat the sewage from a population of 30,000, estimated at 900,000 gallons per day of twenty-four hours, assuming 30 gallons per head. Three-fourths of the total flow,—viz., 675,000 gallons,—will be dealt with in twelve working hours, leaving the remaining fourth, or 225,000 gallons, to be treated during the night-time. There are six precipitation tanks, each of 75,000 gallons capacity, or a total capacity of 450,000 gallons, which will be filled twice during the twenty-four hours, and so dispose of the total quantity, 900,000 gallons. Adjoining these tanks are twelve Polarite filters, each of an area of 123 square yards, or a total filter-space of 1,476 square

yards. They consist of layers of gravel, sand, and Polarite. The system of purification adopted is that of the International Water and Sewage Purification Co. It has been selected, we are informed, after years of careful inquiry, in course of which other systems at work in various localities have been inspected and thoroughly investigated.

THE WATER-SUPPLY OF COLWYN BAY AND CONWAY DISTRICTS.—On the 28th ult. the Joint Committee for the supply of water for the united district of Colwyn Bay, Conway Urban and Conway Rural Sanitary Authorities, opened a dozen tenders for the carrying out of Mr. T. B. Farrington's scheme for the supply of water for the district from Llyn Cowlid. The tender of Mr. Thomas Bugbird, Carnarvon, for 21,050*l.*, was accepted. The work involves the laying of fourteen miles of 12-inch piping. Mr. Mansergh, the engineer of the new Birmingham water scheme, was appointed consulting engineer, and the Committee decided to apply for a loan of 30,000*l.*

SKEGNESS SEWERAGE.—The Skegness Local Board of Health have instructed Mr. D. Balfour, M. Inst. C.E., of Newcastle-on-Tyne, to report on the sewage disposal works of this watering-place with regard to the advisability of extending them owing to the increased population.

SEWAGE DISPOSAL, ECCLES, LANCASHIRE.—On the 12th inst. an inquiry was held at the Board-room, Town Hall, Eccles, by Mr. Arnold Taylor, an inspector from the Local Government Board, respecting a proposal by the Local Board to borrow 6,000*l.* for the purchase of 42 acres of land known as Hardman's Farm, Barton, for sewerage works. Mr. Humill, the Board's Engineer, reported the site as in every way suitable and adapted to the broad irrigation system, which the Board were in favour of, pending the advice of the inspector, with whom an informal conference was arranged. The Board further asked sanction to borrow 1,500*l.*, to enable them to widen Barton-lane, near the old aqueduct of the Bridgewater Canal, from 18 ft. to 30 ft. The Manchester Ship Canal Company undertook to remove the old archway, and replace it by one the requisite width. There was no opposition. The Inspector afterwards visited the sites.

## *FOREIGN AND COLONIAL.*

FRANCE.—There is some talk of founding at Paris a School of Painting for young American artists; it is even reported that the United States Government has resolved to contribute 1,200 dols. towards this object.——There has just been opened at the Georges Petit Gallery a very interesting collection of drawings and paintings which were made for the illustration of the national edition of the works of Molière, Hugo, Balzac, Georges Sand, Merimée, &c. It includes some remarkable illustrations by Benjamin Constant, Cabanel, Gervex, Olivier Merson, J. P. Laurens.——In the Durand Ruel Gallery there have been collected the principal works of Charles Jacques, the animal painter.——The military paintings of Raffet, to whom (as already observed) it it proposed to raise a monument in Paris, are to be exhibited in May at the Georges Petit Gallery.——The Paris Municipality have inaugurated a new group of schools in the Rue Jussienne, near the Halles Centrales. M. Huillard is the architect.——The Exhibition entitled "La Plante," to which we have already referred, which was to have been organised next spring in the Palais des Machines by the Union Centrale des Arts Décoratifs, has been adjourned for want of sufficient funds to carry it out satisfactorily. It will probably be deferred to 1894, and be connected with the inauguration of the new Musée des Arts Décoratifs.——It is proposed to have a special flower-market added to the Halles Centrales, and an architectural competition is to take place for a large winter-garden building to be erected on the present Square des Innocents.——Corot's masterpiece, as by many it is considered, "La Charrette," has been bought oy M. Chauchard, the celebrated Parisian collector. ——A monument to Barye, the great animal sculptor, is to be erected at the junction of the Boulevard Henri IV. and the Quai des Célestins. The monument, around which will be grouped reproductions of some of his animal figures, has been designed by M. Bernier, architect. It will be surmounted by a column bearing a bust of Barye.——M. Baumgart has been appointed the future director of the Sèvres establishment in succession to M. Deck. M. Vogt is to direct the artistic work, and it is proposed to give him a colleague in M. Chéret, who has already filled the same function for some years. M. Vogt announces that he has discovered a new and superior enamel which is to be put in use shortly.——A cast is to be taken of one bay of the Hôtel Bourgthérolde, for the Trocadéro Museum.——The death is announced of M. Claude Bergeret, keeper of the library of Fine Art at the St. Pierre Palace at Lyons.——The President has presented to the city of Lyons two pictures now in the Luxembourg, "La Créole," by Henner, and "La Prière de soir dans le Sahara," by Guillaumet.——M. Pujol is to be the architect for the monument to Grévy to be erected at Dôle, and M. Falguière the sculptor.——The Budget Committee of the Chamber of Deputies has voted 40,000 francs towards the restoration of Mont St. Michel.——A committee composed of Bretons is to be organised to raise a momument to a Breton woman named "Perrinaie," who was a companion of Joan of Arc, and was burned at Rouen with her. The monument will be on the Menez-bré, a hill near Treguier.

BERLIN.—According to the annual official notice on the activity of the Prussian Government in building matters, we find that during the year 1890 the authorities concerned have had the superintendence of erection or alteration of 575 buildings or parts of buildings requiring an outlay of at least 500*l.* In 1889 the number was 525. Of the 575 pieces of work, 330 were commenced during 1890, whilst the remaining 245 were continuations from the preceding year. Among the work carried out under Government superintendence there were 46 churches and 48 vicarages, 114 elementary schools and 10 high-class schools, 32 buildings belonging to the University system, and three each for scientific collections and hospitals; the Government and the Administration required 15 erections, the new town or provincial law-courts numbered 28, and the number of prisons 22. The most expensive of the buildings erected by the Prussian Government were two prisons, one of which cost over 100,000*l.* the other some 70,000*l.*——At a special exhibition of modern gifts and diplomas held at the "Kunstgewerbe Museum," the caskets presented last summer to Emperor William by the City of London and by the Fishmongers' Company take a prominent position. Local art journals praise the general design of these, but criticise severely the detail and workmanship.——The Empress has followed Emperor William's example in showing interest in the new erection of cheap artisan's dwellings in the suburbs of the city, and has bought one of the model houses with the idea of giving it to some deserving workmen. The Royal example is now sure to be followed by members of the aristocracy and "haute finance."——The competition for an equestrian statue of the deceased Emperor William to be placed as centre-piece in the memorial monument on the Kyffhauser (designed by Bruno Schmitz) will be decided next month, the sending-in day being December 10 (eight weeks later than originally intended). Three prizes of 250*l.*, 150*l.*, and 100*l.* will be given.——Among the losses occasioned by the recent bank failures is to be counted part of the fund for the memorial church to be erected in memory of Emperor William I.——Herr Kayser, of the firm of private architects, Messrs. Kayser & v. Grossheim, has been made a titular "Baurath" by order of the Emperor.

VIENNA.—Next summer an International Theatrical Exhibition will be arranged, a collection of all things pertaining to theatrical and musical performance being intended. Among other things, there will be an exhibition of architects' plans for theatres, and of the working drawings and models of stage machinists.——The collection of funds for the erection of a fitting monument to the deceased architect, Von Schmidt, is progressing. The total sum of 17,000 Austrian florins has already been reached.

SWITZERLAND. — The newly-planned Swiss National Museum, which is to be erected at Zurich in accordance with the directions of the Bundesrath of the country, will be taken in hand next spring, the design for the building having been completed and put before the Municipal Authorities for sanction.

NORWAY AND DENMARK.—It is estimated that the new theatre to be built in Christiania will cost about 40,000*l.*, exclusive of interior decorations and fittings. The former amount being now subscribed, the building will, no doubt, be taken in hand at once. It is to be situated in the best part of the town, in close vicinity to the Royal Palace.——*Das Atelier* comments in most favourable terms on the exhibits at the International Art Exhibition in Berlin, of Herr Axel Guldahl, a promising Norwegian architect, for some time resident in Berlin.——The site of the new Museum of Arts and Industries to be erected in Copenhagen, with a large State subsidy, has now been selected. It will be situated in the western part of the town, where will also be situated the new Town Hall, the Art Gallery, presented to the city by the well-known Mæcenas, Herr Carl Jacobsen, the Copenhagen brewer, and now building, and where is also erected the new great Fire Brigade station. In the near future, therefore, this part of Copenhagen will be a very striking one.

THE ENGLISH IRON TRADE.—The English iron trade, unfortunately, continues very quiet generally. Prices show but very little variation; but where changes have occurred, they are in the direction of lower values. No business is done in Scotch warrants, and makers' iron is still inactive, with quotations depressed. The Cleveland pig-iron market is weaker, and the inquiry for hematite pig in the North-West is extremely limited. Manufactured iron is in fair demand, and in steel there is more activity displayed in ship-building material. Engineers are a trifle busier, and ship-building yards are apparently fairly active. The coal trade is quieter.—*Iron.*

## *MISCELLANEOUS.*

THE SURVEYORS' INSTITUTION.—At the ordinary general meeting of this Institution, held on Monday, the 9th, the names of those elected at the ballot of May 23, 1891, were read to the meeting; also a list of candidates (including about 300 applicants for the Fellowship, twenty-five Professional Associates, and seven Associates) reported by the scrutineers as elected at the ballot of Wednesday, November 4, 1891, was read to the meeting, in accordance with the provisions of article 11 of the By-laws.

KIRKTON HOUSE, CARLUKE.—The *Scotsman* says that the historical house of Kirkton, belonging to Lieutenant Stevenson Hamilton, of Fairholm and Kirkton, which has been unoccupied for a number of years, is undergoing repairs and improvements, and it will in a short time be again occupied. Kirkton House is finely situated on a rising ground above the railway station of the Caledonian Company at Carluke. It is a structure of a class common in the sixteenth century, being an extended form of the earlier rude Norman tower. On the corbel of the east gable, towards the south, the date "1618" is cut, and on a stone, evidently part of an older structure,—built into the gable of the newer portion of the house,—the date "1600" appears under a device now too imperfect to trace accurately. In Kirkton House Major Thomas Weir, "The Warlock," was born and brought up.

FORT ST. GEORGE, MADRAS.—The dismantling of Fort St. George, Madras, as announced in the *Army and Navy Gazette*, will remove the greater part of a historical fortress that played its share in the early fortunes of the East India Company. The original fort stands by the sea-shore, near to the river Cooum's mouth, within some later outworks, —built by Robins,—covering a semi circle nearly half a mile in diameter. It was built by Francis Day, who, in 1639, on behalf of the Company, obtained from the Rajah of Chandragiri a grant of some land on which the city now stands. In 1746 it surrendered to Labourdonnais, one of the prisoners on parole being Lord Clive; but was restored to us in terms of the peace of Aix-la-Chapelle. Fort St. George, as the headquarters of the Government of Madras, is associated with the conquests of Clive and Coote over Hyder Ali and the French in the Carnatic.

WROUGHT-IRON SCREENS. — Messrs. Jones & Willis have just completed and fixed a wrought-iron screen across the chancel of All Saints' Church, South Acton, under the superintendence of Mr. Edwards Monson, jun., architect; they have also in hand a screen of similar character, which, when completed, will be fixed at St. Clement's Church, Fulham Palace-road.

RUSSIAN STATE PURCHASE OF RAILWAYS.—During the last few years the Russian Government has been rapidly acquiring private railways. Thus, in 1887, the State only owned eight lines, of a total length of 3,410 versts, whereas on July 1 last it owned fifteen lines of 10,031 versts. Some 4,370 versts have been built, and 2,250 versts constructed by the Government, and the purchase of other private railways is contemplated.

A TUNNEL UNDER THE DANUBE.—Roumanian journals state that it is projected to construct a tunnel under the Danube, for carriage as well as pedestrian traffic.

BUILDING TRADE IN RUSSIA.—A great change is taking place in the Russian building trade. Formerly sheet-iron was mostly used for roofing, but of late red burned tiles are being preferred, similar to the kind used in many other continental countries. Brick-kilns are now springing up in all parts.

SALE OF TIMBER.—As will be seen by an advertisement in this week's *Builder*, Messrs. Goodman, Hughes, & Co. announce a sale of timber for Tuesday next, the 24th inst.

THE SANITARY INSTITUTE.—At the last meeting of the Council of this Institute, the following subjects were decided upon for discussion during the coming session:—Recent practice in ventilation of sewers; Refuse disposal; Working-class dwellings. Arrangements have been made for holding a course of lectures for sanitary officers with the County Council of Derby, to be followed by an examination, and similar arrangements are in progress in other centres. Dr. Francis Vacher, Medical Officer of Health for Birkenhead, was elected Fellow, and fifteen Members and twenty-eight Associates were elected, and a number of applications read for election at the next meeting.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.—On the 14th inst. the students in the honours and advanced stages in building construction visited Stewartville Public School, Partick. Mr. Preston, the clerk of works, met and conducted the party over the building, describing many parts, particularly the swimming-pond and the mechanical system of ventilation. At the close a cordial vote of thanks was proposed by the lecturer, Mr. Gourlay, to Mr. Preston.

THE ELECTRIC LIGHTING EXHIBITION AT THE CRYSTAL PALACE.—We are informed that Mr. Musgrave Heaphy, C.E., has been appointed to supervise the various installations, as far as fire risk is concerned, during the forthcoming Electrical Exhibition at the Crystal Palace.

# COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENT.

## COMPETITION.

| Nature of Work. | By whom Advertised | Premium. | Designs to be delivered. |
|---|---|---|---|
| *Industrial Home for Women, Ashton .... | The Committee ..... | Not stated ..... | No date |

## CONTRACTS.

| Nature of Work or Materials. | By whom Required. | Architect, Surveyor or Engineer. | Tenders to be delivered. |
|---|---|---|---|
| Alterations, &c. Godwell House, Ivybridge | ..... | Rendell & Symons .. | Nov. 24 |
| Warehouses, Stables, &c. Newbottle, Fence Houses | Newbottle and District Co-op. Soc. | *Official* ..... | do. |
| Four Houses, Calverley, Leeds ..... | .... ... | C. S. Nelson..... | do. |
| *Roadmaking and Tar-paving Works..... | Lewisham B. of W. .. | *Official* ..... | do. |
| Intercepting Sewer ..... ..... | Halifax Corporation.. | E. R. S. Escott ..... | Nov. 25 |
| Conservative Club and Residence, Clydach, Swansea Valley ..... | ..... | T. Jones..... | do. |
| *Granite..... | Staines Local Board .. | *Official* ..... | do. |
| *Engine and Boiler Houses, &c. ..... | St. Helens Corporation Waterworks ..... | D. M. F. Gaskin ..... | Nov. 26 |
| Drainage Works..... | Gateshead Corporation | J. Bower ..... | do. |
| Cast-iron Socket Pipes..... | Cardiff Corporation .. | J. A. B. Williams .... | do. |
| Church, Greengates, Apperley Bridge, Leeds ..... | Rev. E. A. Mould .... | J. Kendall & J. H. Bakes | Nov. 27 |
| Large Vestries and Alterations to Chapel, Prudhoe Station ..... | G. Cameron ..... | ..... | Nov. 28 |
| Alterations, Additions, and New Farm Buildings, Shelf, near Halifax ..... | ..... | John Drake ..... | Nov. 30 |
| *Oil Engines and Sewage Pumps ..... | Reigate R.S.A. ..... | J. Anstie ..... | do. |

## CONTRACTS.—*Continued.*

| Nature of Work or Materials. | By whom Required. | Architect, Surveyor, or Engineer. | Tenders to be delivered. |
|---|---|---|---|
| *Baptist Chapel and Schools, Fenny Stratford ..... | Building Committee.. | ..... | Dec. 1 |
| Additions, &c. Asylum, Exminster ..... | Devon County Council | E. H. Harbottle ..... | do. |
| Wrought-iron Girder Work, &c..... | G. W. & L. & N. W. R. | *Official* ..... | do. |
| Attendants' Dormitories, Asylum, Abergavenny ..... | Committee of Visitors | Alfred Swash ... .... | Dec. 2 |
| *Supply of Stores for 12 months ..... | G. N. R. Co..... | *Official* ..... | Dec. 5 |
| *Drainage Works..... | Richmond (Surrey) T.C | Jas. Lemon ..... | do. |
| *Norwegian Edge Kerb..... | Romford L. B..... | *Official*..... | Dec. 7 |
| *New Staircases, &c at Union Workhouse.. | Poplar Union ..... | —Clarkson ..... | Dec. 9 |
| *Cast-iron Mains for Water, Melbourne, Derbyshire ..... | Shardlow U.R.S.A. .. | G. Hodson..... | Dec. 12 |
| Granite Channelling (60,000 feet) ..... | Exeter Corporation .. | *Official* ..... | Dec. 15 |
| Restoring Two Warehouses, &c. Spital-buildings, Cardiff ..... | J. P. Jones ..... | ..... | No date |
| Road Works ..... | Nantwich Un. Guar. | *Official*..... | do. |
| Six Houses, Wortley, Leeds ..... | T. Baxendale ..... | F. W. Rhodes ..... | do. |
| Additions to Craven Lodge, Harrogate .. | J. Cooper Eddison .... | T. Butler Wilson .... | do. |
| *Married Soldiers' Quarters, Devonport .. | War Department .... | *Official* ..... | do. |

## PUBLIC APPOINTMENT.

| Nature of Appointment. | By whom Advertised. | Salary. | Applications to be in. |
|---|---|---|---|
| *Inspector to Examine House Fittings and Drains ..... | Croydon Council..... | 2*l.* 2s. per week ..... | Dec. 2 |

*Those marked with an Asterisk (*) are advertised in this Number.* *Competition*, *p.* iv. *Contracts*, *pp.* iv., vi., *and* viii. *Public Appointment*, *p.* xviii.

THE AIR-SPACE OF WORKSHOPS.—Nine persons with a cubic space of air of less than 1,800 ft. between them are in any case placed under circumstances very dangerous to health; but when to this it is added that these unfortunate persons were working in a room in which there were seven gas-burners and a coke-stove, it is not surprising that the inspector of factories prosecuted the employer. The official minimum is 400 cubic feet of air for each person; but where gas-burners, and especially a charcoal-stove, are in operation, even the official minimum is far below the requirements of health. Ought not the presence of such causes of deterioration of the air and the consumption of oxygen to be taken into separate account when fixing the cubic air-space of workshops?—*British Medical Journal.*

BOOK SALE.—The following works were included in the sale at Messrs. Sotheby, Wilkinson, & Hodge's, two weeks ago, of Mr. John Warwick's large collection of books: Crowe & Cavalcaselle's "New History of Painting in Italy," 3 vols., 1864-6, 12*l.* 5s., and the same authors' "History of Painting in North Italy," 2 vols., 1871, 5*l.* 15s.; T. C. Croker's "Walk from London to Fulham," with Fairholt's cuts, 1860, N. Cole's "Parks and Gardens of London," 1877, and J. T. Smith's "Book for a Rainy Day," 1861, 8s.; E. & J. De Goncourt's "L'Art du 18me Siècle," 2 vols., Paris, 1873, and H. Destailleur's "Notices sur Quelques Artistes Français," *ib.*, 1863, 5s. (Cross); Holbein's "Dance of Death," by Douce, bound by Rivière, 1833, 16s. (Sotheran); J. B. Descamps' Peintres Flamands, Allemands, et Hollandois, portraits, Paris, 1753, and H. Cohen's "Guide de l'Amateur de Livres à Vignettes," Paris, 1870, and another book, 1*l.* 1s. (Ridler); C. J. Dorat's "Les Baisers," &c., large paper, vignettes by De Longueil & Delaunay, after Eisen & Marillier, La Haye, 1770, 27*l.*; G. Duplessis' "Histoire de la Gravure," 73 illustrations, Paris, 1880, 14s.; A. Demmin's "Guide de l'Amateur de Faïences et Porcelaines," Paris, 1863; J. Graesse's "Guide de l'Amateur de Porcelaines et Poteries," Dresden, 1885 (and two other books), 10s.; C. Ephrussi's "Designs by Dürer," two sets of illustrations (only 100 copies printed), Paris, 1882, 1*l.* 16s.; J. Evelyn's "Sculptura," 1st edition, with the mezzotint portrait by Prince Rupert, 1662, 3*l.* 12s.; Louis Fagan's "Collectors' Marks," 1883, 12s. (Rimell); Louis Fagan's "Art of Michel Angelo," 1883, 11s. (Quaritch); T. Faulkner's "Hammersmith," 1839, and his "Kensington," 1820, 1*l.* 4s. (Sotheran); Fergusson & Burgess's "Cave Temples of India," 1880, 1*l.* 3s. (Sotheran); Dart's "Westminster," 2 vols., large paper, 1723, 1*l.* 8s., and his "Canterbury," 1726, both fol., 13s.; J. Le Keux's "Memorials of Cambridge," 2 vols., 1845, 1*l.* 2s. (Hill); E. Law's "History of Hampton Court Palace," vols. i. and ii., 1*l.* 7s.; P. G. Hamerton's "Graphic Arts," 1882, 2*l.* 18s. (Bergholt), and his "Landscape," with original etchings, &c., 1885, both 4to, 2*l.* 12s.; S. & E. Harding's "Portraits," forty-five drawings, mounted, 5*l.* 12s. 6d.; A. Rimmer's "Ancient Streets and Homesteads of England," 150 illustrations, 1877, with Mrs. Oliphant's "Makers of Florence, and their City," 2 vols., 2*l.* 13s. (Edwards); J. Halfpenny's "Gothic Ornaments of York Minster," 105 plates, 1795, 4to, 8s.; "Magazine of Art," 13 vols., 4to, 3*l.* 7s. (Rimell); E. Moor's "Hindu Pantheon," 4to, 3*l.* 3s. (Quaritch); W. Y. Ottley's "Origin and Early History of Engraving upon Copper and on Wood," 2 vols., bound by F. Bedford, 4*l.*, with his "Invention of Printing," 18s.; Pennant's "London," 1790, with E. W. Brayley's "Graphic and Historical Illustrator," 2 vols., 1834, 4to, 9s. (Ridler); Milton's "L'Allegro," illustrated by the Etching Club, proofs on India paper, 1849, 4to., 2*l.* 10s.; L. Morris's "Epic of Hades," with seventeen designs in photo-mezzotint by G. R. Chapman, 1879, 10s.; and Maquet's "Paris sous Louis XIV., Monuments et Vues, Paris," 1883, 4to, 4s. (Dobell). A copy of "the Illustrated Priced Catalogue of the Hamilton Palace Collection," 1882, was bought for 2s.

## *LEGAL.*

### CASE UNDER THE BUILDING ACTS:

ROOF COVERINGS. PAYNE *v.* WRIGHT.

THE District Surveyor of East Hackney (South) and North Bow, Appellant, *v.* The Manager of the Wirewove Roofing Company, Queen Victoria-street, E.C., Respondent, was a special case, being an appeal (heard in the Queen's Bench Division on the 13th inst., before Mr. Justice Mathew and Mr. Justice A. L. Smith) against the decision of the magistrate, taken by the London County Council in support of the District Surveyor, who had served a notice on the respondent for covering a roof with a material known as Duroline, and which was said to be combustible, contrary to section 19 of the Act of 1855. Mr. Horace Avory appeared on behalf of the London County Council, and Mr. Cutler, Q.C., and Mr. C. F. Gill appeared for the respondent.

The case before the magistrate was reported in the *Builder* of June 13, 1891, p. 478, and the chief points in the evidence were as follow:—

The Wire-wove Roofing Company had covered the roof of a building used as a store-house in the rear of 81, Victoria-park-road with a material called Duroline, which the District Surveyor contended was combustible material, contrary to section 19 of 18 and 19 Vict., chap. 122, which provides that the roofs of buildings shall be constructed as follows,—that is to say, that the flat gutter and roof of every building and every turret, dormer lantern light, skylight, or other erection placed on the flat or roof thereof shall be externally covered with slates, tiles, metal, or other incombustible materials; and that due notice having been given by the appellant to the respondent to do certain things, he had made default in doing them. Duroline is composed of woven iron wire, coated with an oleaginous compound which is wholly waterproof and semi-transparent, and is used at the Royal Aquarium, Olympia, Doulton's, Pickford's, and other places. It was proved by experiment in court that if a light be applied to the edge of a piece of the material, the coating will ignite and will burn away, leaving the wirework uninjured, and when in a flat position, it can be ignited by pieces of hot coal or lighted stick being placed upon it; but that the longer it is exposed to the air, the more difficult it is to ignite, and that a piece that had been in use for four or five years did not ignite when pieces of live coal were placed upon it. The Chemist to the London County Council had given evidence that at a temperature of 320 degrees Fahrenheit the material gives off inflammable vapour, and when placed in a crucible, it burst into flame five seconds before wood-shavings under similar conditions. No evidence was given that any fire had taken place where this material was used, and the witnesses called by the respondent had stated that it was safer than glass when used on skylights, because lighted objects which fall through glass would not fall through the wire foundation, and because, in case of a fire, though the oleaginous coating might be consumed, the wire network would remain, and would prevent the rush of flame through. The appellant had given evidence that experiments tried by him had proved that the material would ignite readily, and, therefore, it could not be considered as incombustible, and that it was dangerous to cover roofs of buildings with such a material. Similar evidence was given by Mr. Thos. Blashill, the Superintending Architect to the London County Council. The respondent contended that the said material, as a whole, was not capable of being consumed by fire, that, therefore, it was incombustible within the meaning of the statute. The magistrate found as a fact that part of the material,—that is to say, the oleaginous coating,—was a combustible, that part of it,—that is to say, the wire network,—was incombustible; and he held, having regard to the objects and purposes of the statute, that the material, as a whole, was an incombustible material within the meaning of the statute. The question for the court was whether he was right in this. No fresh evidence was adduced beside the evidence brought before the magistrate.

Mr. Justice Mathew said the magistrate had evidence before him that this material was safer than glass, and the court was also informed that no extra premium was charged by fire insurance companies when this material was used instead of glass. But, notwithstanding that, the finding of the magistrate was conclusive. He found, as a fact, that part of the material was combustible. How could it be possible on that for the court to say that it was incombustible? The roofing was formed with combustible material, which would ignite and burn away, as was clearly shown by the specimens laid before the court. More than that, it gave off an inflammable vapour. It was impossible to say that it was incombustible. The magistrate ought to have convicted. The case must be remitted to him with the opinion of the court. It was worth observing that this was a case where the material was new, and not where it had been up for many years, which made it much less combustible.

Mr. Justice A. L. Smith concurred, though with regret, as the evidence showed that in practice the material had not caused any fire during the six years it had been in use, but the Act was clear. The roofs were to be covered with "slates, tiles, metal, or other incombustible materials." Could that include material which was partly combustible and partly incombustible? Clearly not.

## MEETINGS.

MONDAY, NOVEMBER 23.

*Surveyors' Institution.*—Mr. J. R. Adams on "The Title to Land, its Registration and Transfer." 8 p.m.

*Leeds and Yorkshire Architectural Society.*—Address by the President, Mr. W. H. Thorp, F.R.I.B.A., 7.30 p.m.

TUESDAY, NOVEMBER 24.

*Institution of Civil Engineers.*—Discussion on the following papers:—(1) "Portland Cement: its Manufacture, Use, and Testing," by Mr. H. K. Bamber. (2) "The Inspection of Portland Cement for Public Works," by Mr. A. E. Carey. (3) "The Influence of Sea-Water upon Portland Cement, Mortar, and Concrete," by Mr. William Smith. 8 p.m.

*Sanitary Institute (Lectures for Sanitary Officers).*—Professor A. Wynter Blyth on "Sanitary Law, English, Scotch, and Irish; General Enactments; Public Health Act, 1875; Model By-laws, &c." 8 p.m.

*Glasgow Architectural Association.*—Smoking Concert and Exhibition of Drawings. 8 p.m.

WEDNESDAY, NOVEMBER 25.

*Society of Arts.*—Professor Silvanus P. Thompson on "Measurement of Lenses." 8 p.m.

*St. Paul's Ecclesiological Society.*—Mr. J. Starkie Gardner, F.S.A., on "Enamels in connexion with ecclesiastical art." 7.30 p.m.

*London Society for the Extension of University Teaching (Chelsea Centre).*—Mr. A. H. Fison, D.Sc., on "Electricity and its Modern Applications." VIII. 8.15 p.m.

*Liverpool Engineering Society.*—Discussion of some subjects of Practical Engineering Interest, to be introduced by Messrs. A. W. Brightmore, G. Farren, and J. H. T. Turner. 8 p.m.

*The Hospitals Association (Royal Free Hospital, Gray's Inn-road).*—Mr. Conrad W. Thies, on "A Model Hospital,—The New General Hospital, Hamburg." 8 p.m.

THURSDAY, NOVEMBER 26.

*Institution of Electrical Engineers.*—Discussion on Captain H. R. Sankey's and Mr. F. V. Andersen's paper on "The Standard Volt and Ampère Meter used at the Ferry Works, Thames Ditton." 8 p.m.

FRIDAY, NOVEMBER 27.

*Architectural Association.*—Mr. H. Wilson on "John D. Sedding, his work and influence." 7.30 p.m.

*Institution of Civil Engineers (Students' Meeting).*—Mr. Walter Clemence on "Modern Railway Carriages." 7.30 p.m.

*Sanitary Institute (Lectures for Sanitary Officers).*—Professor A. Wynter Blyth on "Sanitary Laws and Regulations governing the Metropolis." 8 p.m.

*Junior Engineering Society.*—Presidential address by Sir E. J. Reed.

*London Society for the Extension of University Teaching (Hampton Court Centre).*—Mr. Locke Worthington on "Architecture." IV. 2 30 p.m.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

NOVEMBER 10.—By *Brodie, Timbs, & Baker*: 14, Fulham-pl., Paddington, u.t. 46 yrs., g.r. 6*l.*, r. 52*l.*, 550*l.*—By *Rogers, Chapman, & Thomas*: 82, Denbigh-st., Pimlico, u.t. 37 yrs., g.r. 8*l.*, r. 60*l.*, 550*l.*; 56, Cumberland-st., u.t. 42 yrs., g.r., 9*l*, 365*l.*—By *Chinnock, Galsworthy, & Co.*: 308, Goswell-rd., f. beerhouse. r. 45*l.*, 1,010*l.*; 9, Sidney-st., f. beerhouse, r. 45*l.*, 1,050*l.*; 338, City-rd., f., "City of London Tavern," r. 225*l.*, 6,700*l.*; 304 and 306, Goswell-rd., f., r. 107*l.*, 1,505*l.*; 310, Goswell-rd., and 1, Sidney-st., f., r. 95*l.*, 1,610*l.*; 2 to 7, and 10 to 15, Sidney-st., f., r. 481*l.*, 6,090*l.*; 334 and 16, Sidney-st., City-rd., f., r. 80*l.*, 1,140*l.*; 330, 332, 336, 340 to 348, City-rd. (even), f., r. 496*l.*, 7,190*l.*; 352 to 370 (even), City-rd., f., r. 590*l.*, 8,415*l.*; 378, 380, 384 to 396 (even), City-rd., f., r. 580*l.*, 8,790*l.*

NOVEMBER 11.—By *Wenham & Davies*: Copenhagen-st., Caledonian-rd., f.g.r. of 100*l.*, with reversion in 42 yrs., 3,100*l.*—By *G. B. Smallpeice*: The lease, goodwill, and furniture, &c., of No. 9, Billiter-square, u.t. 16½ yrs., 1,010*l.*—By *Charles & Tubbs*: f.g.r. of 155*l.*, with reversion in 79 yrs., Paper-st., City of London, 3,875*l.*—By *T. N. Turner*: 34, Munster-sq., Regent's-pk., u.t. 31 yrs., g.r. 21*l.*, r. 45*l.*, 200*l.*; 36 and 37, Munster-sq., and 22 and 24, Little Albany-st., u.t. 31 yrs., g.r. 18*l.* 18s., r. 130*l.*, 980*l.*; 42, Adelaide-rd., Haverstock - hill, u.t. 48 yrs., no g.r., 780*l.*; Roxborough-rd., Harrow-on-the-Hill, f., house, stabling, &c., r. 26*l.*, 500*l.*—By *Rutley, Son, & Vine*: 1 to 4, Manchester-ter., Kensal Green, u.t. 40 yrs., g.r. 35*l.*, 420*l.*; 1 to 10, Marshall's-pl., Bermondsey, u.t. 88 yrs., g.r. 55*l.*, 505*l.*; 22, 24, 28 to 38 even, and 44, Station-rd., Shepherd's Bush, u.t. 73 yrs., g.r. 18*l.*, 2,430*l.*; 107, Chancellor's-rd., Hammersmith, u.t. 75 yrs., g.r. 4*l.* 10s., r. 28*l.* 12s., 160*l.*—By *Chinnock, Galsworthy, & Co.*: 393, City-rd., f., area 5,142 ft., r. 150*l.*, 4,175*l.*; 366, Goswell-rd., f., area 2,650 ft., 1,460*l.*; Nos. 350 to 362 (even), Goswell-rd., f., r. 260*l.* 19s., 4,080*l.*; 326 to 330 (even); and 334 to 348 (even), Goswell-rd., f., r. 463*l.* 7,015*l.*; 318 to 324 (even),, Goswell-rd. f., r. 158*l.*, 2,320*l.*; 312, 314, 316, Goswell-rd.; and 29 and 30, Sidney-st., f., r. 147*l.*, 1,809*l.*; 20 to 28, Sidney-st., f., r. 323*l.* 12s., 3,670*l.*; Nos. 319 to 331 (odd), City-rd., f., r. 435*l.*, 6,350*l.*; Nos. 333 to 341 (odd); and 347, City-rd., f., r. 378*l.*, 5,455*l.*

NOVEMBER 12.—By *C. C. & T. Moore*: F.g.r. of 12*l.*, with reversion in 73 yrs., Maryland-road, Stratford, 305*l.*; 40, 41, 44, to 47, Lincoln-st., Mile End, u.t. 71 yrs., g.r. 24*l.*, 1,015*l.*; 7, Cecil - st., u.t. 38 yrs., g.r. 3*l.* 10s., 175*l.*; 9, Cecil-st., u t. 38 yrs., g.r. 3*l.* 10s., 175*l.*; 54, Gould-st., Stepney, f., r., 225*l.*; 27 to 35 (odd), Terrace - rd., Upton Manor, f., 1,530*l.*—By *Stimson & Sons*: 2 to 24, Brailsford-rd., Brixton, u.t. 83 yrs., g r. 82*l*, r. 327*l.* 10s., 2,500*l.*; 71 to 81 (odd), Landcroft-rd., Dulwich, u.t. 87 yrs., g.r. 35*l.*, 820*l.*; 41 and 43, Freeling-st., Islington, u.t. 53 yrs., g.r. 15*l.*, r. 52*l.* 10s., 320*l.*; 23, Richmond-rd., Dalston, u.t. 20 yrs., g.r. 2*l.* 5s., 160*l.*; 237, South Lambeth-rd., u.t. 74 yrs., g r. 10*l.*, r. 48*l*, 390*l.*; 49, Shakespeare-rd., Herne-hill, u.t. 71 yrs., g.r. 5*l.* 10s., r. 30*l.*, 300*l.*—By *Mullett, Booker, & Co.*: 82, Seymour-st., Hyde-park, u.t. 17 yrs., g.r. 10*l.* 10s., r. 110*l.*, 720*l.*; 85, White Horse-st., Stepney, f., r. 55*l.*, 620*l.*—By *H. V. Chew*: 12 and 14, Deynsford-rd., Camberwell, u.t. 65 yrs., g.r. 6*l.*, 540*l.*; 226 and 228, Rotherhithe New-rd., u.t. 59 yrs., g.r. 6*l.*, 570*l.*—By *Chinnock, Galsworthy, & Co.*: Nos. 349 to 361 odd, City-rd., f., r. 475*l.*, 9,360*l.*; Nos. 363 to 377 odd, City-rd., f., r. 520*l.*, 9,100*l.*; Nos. 379 to 389 odd, City-rd., f., r. 380*l.*, 8,100*l.*; Nos. 1 to 9, Colebrook-row, f., r. 558*l.*, 9,690*l.*; Nos. 11 to 16, Nelson-ter., 1 to 7, Nelson Cottages, and 1 to 4, Nelson-pl., area 33,000 ft., f., 7,400*l.*; Nos. 1 to 7, Nelson-buildings, and 5 to 16, Nelson-pl., f., r. 318*l.* 10s., 2,500*l.*; Nos. 1 to 10, Nelson-ter., f., r. 291*l.*, 4,110*l.*

NOVEMBER 13.—By *M. Vigers*: Nos. 85, 87, 93 to 101 (odd), Dorset-rd., Kennington, l.g.r of 27*l.* 13s., u.t. 12 yrs., g.r. 44*l.*, 760*l.*—By *W. B. Hallett*, 56 to 62 (even), Kingsdown - rd., Holloway, u.t. 71 yrs., g.r. 22*l.* 1s., 800*l.*—By *Buckland & Sons*: 8 to 14 (even), Neville-st., Lambeth, u.t. 13 yrs., g.r. 10*l.* 14s., r. 114*l.* 14s., 310*l.*—By *T. G. Wharton*: F.g.r. of 54*l.*, with reversion in 99 yrs., Stamf rd-hill, 1,190*l.*; f g.r. of 22*l.*, with reversion in 85 yrs., 500*l.*; f. g.r. of 24*l.*, with reversion in 85 yrs., 280*l.*; f.g.r. of 45*l.*, with reversion in 85 yrs., Netherton-rd., Seven Sister's-rd., 960*l.*

**[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]**

## RECENT PATENTS:

### ABSTRACTS OF SPECIFICATIONS.

19,897.—COWL OR WINDGUARD: *J. B Libby.*—Two solid and two partly-open sides are made, the latter fitted with louvres, which direct the current and prevent down-draught.

20,201.—LOCKING SASH-FRAMES: *W. Hyland & W. Clissold.*—This is claimed to be an improved device for retaining sashes with an adjustable base-plate fitted as ears and screws for its adjustment, and with a roller also to adjust the frame and minimise the friction.

20,432.—LOCKING MECHANISM FOR DOORS, WINDOWS, &c.: *D. A. Crombie & E. R. Fletcher.*—The principal point consists in the use of automatically-operated, oscillating, or moving levers, &c., so as to form locking and releasing mechanism for windows, especially railway or car windows.

20,506.—WINDOW-SASHES: *J. Bautier.*—In the lower edges of the sash is fixed a plate, which is secured to the lower edges of the sash.

13,326.—SUSPENSION BRIDGES: *L. Cormerois.* — To prevent the danger arising where the suspension bridge is fixed (as usual by flexible cables), so as to offer resistance to the wind. The main cables under this invention are fixed obliquely, connected at their points of intersection to form a central fixed point or support, with stiffening-rods and stays arranged in an improved manner.

13,957.—FLUSH HINGES: *J. D. Davis.*—Consists in the combination of the two halves of the hinge, adapted to be secured to the parts of a connecting piece pivoted in one half of the hinge, and arranged to slide in the other half.

### NEW APPLICATIONS FOR LETTERS PATENT.

*November* 2.—18,862, W. Greave, Pipe Joints.—18,869, A. Smith, Nail or Tack.—18,871, R. Briggs, Fastenings for Doors of Theatres and other Buildings.—18,901, J. Torres and J. Benjumed, Heating Apparatus.

*November* 3.—18,910, J. Anderson, Drain Traps.—18,921, J. Blakesley and A. Rammage, Fireproof Floors, Roofs, Girders, &c.—18,927, T. Knell, Fastening for Door Knobs or Handles.—18,939, J. Bonta, Rolling Plate and Sheet Glass.—18,963, N. Sorensen, Retaining Doors, &c., in their open positions.—18,983, W. Astell and J. Toslevin, Sash-fasteners.

*November* 4.—19,003, W. Pates, Water-closets, Flushing Apparatus, and Traps.—19,023, G. Couch, Window-sashes, Frames, and Fittings.

*November* 5.—19,080, B. Clarke, Glazing Bar or Rafter.—19,106, D. Ward, Making Coloured Stucco, Coloured Concrete Blocks and Tiles.—19,131, E Jeyes and C. Kinslow, Attaching Sash-cords to Window-sashes.

*November* 6.—19,182, W. Gleave, Earthenware Pipe-joints.

*November* 7.—19,261, J. Fagan, Flushing Cisterns for Water-closets. — 19,264, T. Poyser, Wood Screws.—19,266, W. Thompson, Window-fasteners.—19,276, R. Gries, Construction of Floorings. Ceilings, and Partitions of Buildings.—19,289, R. Griffin, Speaking-tube Terminal.

### PROVISIONAL SPECIFICATIONS ACCEPTED.

16,009, W. and E. Freeman, Joining all Earthenware, Sanitary, and other Traps and Nozzles on to Lead Pipes to enable plumbers to make permanent joints.—16,375, W. Taylor, Burning of Cement-making Materials, Lime, &c.—16,468, G. Lawrence, Building with Concrete Blocks.—16,784, C. Alten, Diffusing Heat from Fireplaces.—16,843, J. Kaye, Method of actuating Exit Doors.—16,935, J. Joensen, Double Plane-irons.—16,977, H. Whincop, Lightning-rod Staples —17,006, I. Lange, Sanding Bricks, &c.—17,018, A. Tyler and J. de Vesian, Wood-carving Machines.—17,031, M. Lawton, Sockets of Window-fittings. — 17,100, W. Douslin, Mortice Locks. — 17,305, J. Chapman, Automatic Flushing Syphon.—17,335, W. Reynor, Securing Window-sashes and Lifting same, also Closing.—17,389, R. Roderick, Gasaliers, Chandeliers, &c., supported and balanced by weights. — 17,484, F. Bardall, Window-fastenings.—17,592, A. Hewitt, Fastenings for Hinged Windows, &c.—17,672, J. and A. Duckett, Water-closets.—18,245, L. Seager, Making Bricks, &c.—18,310, E. Casper and W. Sowerby, Manufacture of Paint, &c.—18,311, L. Seager, Window Sashes, &c.

### COMPLETE SPECIFICATIONS ACCEPTED.

***Open to Opposition for Two Months.***

18,139, W. Adamson, Ventilating and Damp-resisting Brick.—14,686, H. Allison, Traps for Bath Tubes.

## PRICES CURRENT OF MATERIALS.

| TIMBER. | | |
|---|---|---|
| Greenheart, B.G. ton | 9/0/0 | 0/0/0 |
| Teak, E.I... load | 8/10/0 | 14/0/0 |
| Sequoia, U.S.ft.cu. | 2/3 | 3/0 |
| Ash, Canada load | 2/5/0 | 4/0/0 |
| Birch, do. ..... | 2/10/0 | 4/5/0 |
| Elm, do. ..... | 3/5/0 | 4/15/0 |
| Fir, Dantsic, &c. | 2/0/0 | 3/10/0 |
| Oak, do. ..... | 2/10/0 | 4/10/0 |
| Canada..... | 4/17/6 | 6/10/0 |
| Pine, Canada red | 2/10/0 | 3/10/0 |
| Do, yellow .... | 2/0/0 | 5/0/0 |
| Lath, D'ntsic, fath | 5/0/0 | 6/0/0 |
| St. Petersburg | 5/0/0 | 7/0/0 |
| Deals, Finland, 2nd & 1st std 100 | 8/0/0 | 10/10/0 |
| Do, 4th & 3rd.. | 7/10/0 | 8/10/0 |
| Do. Riga ..... | 6/10/0 | 8/0/0 |
| St. Petersburg, 1st yellow .. | 10/10/0 | 15/0/0 |
| Do. 2nd yellow | 8/10/0 | 10/0/0 |
| Do. white .... | 7/0/0 | 10/10/0 |
| Swedish ..... | 7/10/0 | 15/10/0 |
| White Sea .... | 8/10/0 | 17/10/0 |
| Canada, Pine 1st | 13/0/0 | 25/0/0 |
| Do. do. 2nd.... | 9/0/0 | 16/10/0 |
| Do. do. 3rd, &c. | 6/10/0 | 10/0/0 |
| Do. Spruce. 1st | 8/10/0 | 10/10/0 |
| Do. do. 3rd & 2nd..... | 6/0/0 | 7/15/0 |
| New Brunswick | 5/10/0 | 7/10/0 |
| Battens, all kinds | 3/10/0 | 15/10/0 |
| Flooring Boards, sq., 1 in. prep. 1st ..... | 0/8/0 | 0/14/0 |
| Do. 2nd..... | 0/7/6 | 0/11/0 |
| Other qualities | 0/5/0 | 0/8/0 |
| Cedar, Cuba ..ft. | 3/4 | /4½ |
| Honduras, &c. | /3½ | /4½ |
| Mahogany, Cuba. | /4½ | /6½ |
| St. Domingo, cargo av | /4½ | /8½ |
| Mexican do. do | /4 | /5 |
| Tobasco do. do | /5½ | /7 |
| Honduras do.. | /5½ | /6½ |
| Box, Turkey ton | 4/0/0 | 13/0/0 |
| Rose, Rio..... | 10/0/0 | 20/0/0 |
| Bahia ..... | 9/0/0 | 18/0/0 |
| Satin, St. Domingo ....ft. | 0/0/9 | 0/1/0 |

| TIMBER (*continued*). | | |
|---|---|---|
| Satin, Porto Rico | 0/0/10 | 0/1/6 |
| Walnut, Italian.. | 0/0/3½ | 0/0/7 |
| **METALS.** | | |
| IRON—Pig, in Scotland .....ton | 47/3/0 | 48/0/0 |
| Bar, Welsh, in London..... | 6/0/0 | 6/2/6 |
| Do. do. at works in Wales ..... | 5/10/0 | 5/12/8 |
| Do. Staffordshire, in London .... | 6/10/0 | 6/15/0 |
| COPPER—British, cake and ingot | 48/0/0 | 50/10/0 |
| Best selected .. | 49/10/0 | 51/0/0 |
| Sheets, strong.. | 59/0/0 | 60/0/0 |
| Chili, bars .... | 45/10/0 | 45/17/6 |
| YELLOW METAL lb. | 0/0/5½ | 0/0/6 |
| LEAD — Pig, Spanish ....ton | 11/10/0 | 11/12/6 |
| English, com. brands ..... | 11/15/0 | 11/17/6 |
| Sheet, English, 3 lbs. per sq. ft. and upwards .. | 13/15/0 | 0/0/0 |
| Pipe ..... | 14/0/0 | 0/0/0 |
| ZINC — English sheet .....ton | 26/10/0 | 0/0/0 |
| Vieille Montagne..... | 27/0/0 | 0/0/0 |
| TIN—Straits .... | 91/5/0 | 92/10/0 |
| Australian .... | 91/5/0 | 92/10/0 |
| English Ingots | 94/0/0 | 95/0/0 |
| **OILS.** | | |
| Linseed .....ton | 19/10/0 | 0/0/0 |
| Cocoanut, Cochin | 27/0/0 | 0/0/0 |
| Do. Ceylon ..... | 24/0/0 | 0/0/0 |
| Palm, Lagos .... | 24/10/0 | 0/0/0 |
| Rapeseed, English pale ..... | 31/0/0 | 0/0/0 |
| Do. brown ..... | 29/10/0 | 0/0/0 |
| Cottonseed ref... | 19/10/0 | 0/0/0 |
| Oleine ..... | 0/0/0 | 0/0/0 |
| Lubricating, U.S. | 4/10/0 | 5/10/0 |
| Do. refined ..... | 6/0/0 | 11/0/0 |
| TAR—Stockholm barrel | 0/19/6 | 1/0/0 |
| Archangel .... | 0/12/6 | 0/12/9 |

## TENDERS.

**[Communications for insertion under this heading must reach us *not later than* 12 *noon on Thursdays.*]**

ALDERBURY (near Salisbury).—For building lodge, coach-house, stabling, &c., for Mr. Walter M. Osmond, of Calcutta and Salisbury. Mr. Fred Bath, F.S.I., architect. Quantities supplied:—

| | | | | | |
|---|---|---|---|---|---|
| Edward Witt..... | £2,912 | 10 | 6 | £2,656 | 0 6 |
| H. J. Kite ..... | 2,618 | 0 | 0 | 2,307 | 0 0 |
| R. R. Facey ..... | 2,595 | 14 | 10 | 2,430 | 14 10 |
| W. J. & C. S. Young ..... | 2,570 | 0 | 0 | 2,173 | 0 0 |
| Chas. Mitchell, Woodfalls, Salisbury* | 2,334 | 0 | 0 | 2,199 | 4 0 |
| C. A. Hayes ..... | 2,057 | 14 | 9 | 2,012 | 14 9 |

* Accepted for all except stable-building, being the lowest for the other works.

BRISTOL.—For the erection of new buildings, Lewin's Mead, Bristol, for the Bristol United Brewery Co., Ld. Mr. W. Bruce Gingell, architect, Bristol:—

| | | | |
|---|---|---|---|
| T. H. Brown..... | £1,416 | H. A. Forse ..... | £1,319 |
| E. Walters ..... | 1,395 | Cowlin & Son ..... | 1,317 |
| Eastabrook & Sons..... | 1,394 | Stephens, Bastow, & Co. .. | 1,299 |
| Neale Bros..... | 1,364 | E. Love ..... | 1,297 |
| Brock & Son ..... | 1,350 | E. L. Hatherley ..... | 1,297 |
| E. Gay ..... | 1,348 | J. Perkins ..... | 1,280 |
| W. Veals ..... | 1,347 | | |

[All of Bristol.]

BROADSTAIRS.—For extension of roads on the Callis Court Estate, Broadstairs. Messrs. A. J. Baker & Son, surveyors, 11, Queen Victoria-street:—

| | |
|---|---|
| Barlow & Roberts..... | £190 0 0 |

[No competition.]

CARLISLE.—Accepted for the erection of a Public Library, Museum, School of Art, &c., Carlisle, for the Corporation. Mr. W. Howard Smith, City Surveyor, Carlisle. Quantities by Mr. Linley Oldroyd, Leeds:—

| | | | |
|---|---|---|---|
| *Mason and Bricklayer*—J. & W. Baty ..... | £5,871 | 0 | 0 |
| *Joiner*—Hy. Court ..... | 1,992 | 8 | 2 |
| *Slater*—C. J. Nanson ..... | 190 | 0 | 0 |
| *Plumber*—W. Anderson..... | 441 | 0 | 0 |
| *Smith and Founder*—Pratchitt Bros. ..... | 444 | 0 | 0 |
| *Plasterer*—S. Ferguson & Sons..... | 340 | 0 | 0 |
| *Concrete Floors, Steps, &c.*—S. Ferguson & Sons. | 240 | 0 | 0 |
| *Painter*—W. Ballantyne ..... | 107 | 3 | 6 |
| *Glazier*—D. Canning ..... | 221 | 10 | 0 |

[All of Carlisle.]

DOVER.—For erecting new premises, Market-square and Market-street, for Mr. Henry Hart. Mr. Edward W. Fry, architect. Quantities by the architect:—

| | | | |
|---|---|---|---|
| Webster ..... | £5,850 | Stiff..... | £5,183 |
| J. J. Wise ..... | 5,770 | Bromley..... | 5,040 |
| W. & J. Denne..... | 5,650 | W. T. Dowle..... | 4,946 |
| G. Denne & Son ..... | 5,450 | Richardson ..... | 4,800 |
| Lewis & Son ..... | 5,425 | W. G. Lewis..... | 4,740 |
| Hayward & Paramour .... | 5,398 | Austen & Lewis, Dover* .. | 4,719 |

* Accepted with modifications.

EPPING (Essex).—For extension of road on the Kendal Lodge Estate, for Mr. F. D. Dixon-Hartland. Messrs. A. J. Baker & Son, surveyors, 11, Queen Victoria-street, E.C.:—

| | |
|---|---|
| Barlow & Roberts ..... | £365 0 0 |

[No competition.]

HERNE BAY.—For the erection of new slaughter-house, stabling, and premises, Richmond-street, Herne Bay, for Mr. F. W. Boulding. Mr. Harry Farley, architect, Richmond-street, Herne Bay:—

| | | | |
|---|---|---|---|
| G. Admans..... | £375 | 10 | C. Welby ..... £310 0 |
| E. Taylor ..... | 369 | 12 | E. T. J. Adams, Herne |
| A. S. Ingleton ..... | 348 | 0 | Bay (accepted) ..... 260 0 |

HORNSEY.—For making-up roads, footpaths, and sewers. Mr. T. de Courcy Meade, C.E., Engineer:—

B. Cooke & Co., Phœnix Wharf, Church-road, Battersea (accepted):—Duckett-road, £1,155; Effingham-road, £1,470.

LONDON.—For building St. Alban's Vicarage, Acton-green, Middlesex, for the Rev. G. H. Alanbey, M.A. Mr. Fredk. W. Peel, architect, Bedford Park, Chiswick:—

| | | | |
|---|---|---|---|
| C. Johnson..... | £2,890 | Adamson ..... | £2,485 |
| G. Hooper ..... | 2,875 | Cronin ..... | 2,448 |
| Fosser ..... | 2,830 | Dorey ..... | 2,425 |
| Powell..... | 2,788 | Bolsham..... | 2,386 |
| Bryant ..... | 2,643 | Jackson Bros. ..... | 2,294 |
| Blackburn..... | 2,600 | H. G. Heywood ..... | 2,219 |
| Hussey ..... | 2,600 | | |

LONDON.—Accepted for making-up, paving, and channelling Rothbury and Allanmouth roads, Bow, E., for the Poplar District Board of Works:—

*Rothbury-road.*

| | |
|---|---|
| Lewis Griffiths & Co., Bromley-by-Poplar ..... | £427 0 0 |

*Allanmouth-road.*

| | |
|---|---|
| Lewis Griffiths & Co., Bromley-by-Poplar ..... | 410 0 0 |

LONDON.—Accepted for making-up, kerbing, paving, and channelling Drylands-road, Bourne-road, and Landrock-road, for the Hornsey Local Board. Mr T. de Courcy Meade, Engineer:—

*Drylands-road.*

| | |
|---|---|
| Lewis Griffiths & Co., Bromley-by-Poplar ..... | £895 0 0 |

*Bourne-road.*

| | |
|---|---|
| Lewis Griffiths & Co., Bromley-by-Poplar ..... | 915 0 0 |

*Landrock-road.*

| | |
|---|---|
| Lewis Griffiths & Co., Bromley-by-Poplar ..... | 529 0 0 |

LONDON.—For proposed lavatories, Falcon-road, Batterseа, for the Vestry of St. Mary, Battersea. Mr. J. T. Pilditch, Surveyor:—

| | | | |
|---|---|---|---|
| J. Jennings ..... | £1,985 | 0 | Stimpson & Co. ..... £1,720 0 |
| E. Hood ..... | 1,840 | 0 | Barlow & Roberts..... 1,639 0 |
| Turtle & Appleton .... | 1,796 | 0 | E. Horton ..... 1,529 0 |
| Doulton & Co. ..... | 1,793 | 5 | Johnson & Co. ..... 1,498 0 |

LONDON.—For alterations to the "Cumberland Arms" Tavern, West Kensington, for Mr. Blasmire. Mr. C. J. C. Pawley, architect, 2, Princes-mansions, Victoria-street:—

| | | Asphalte flat in place of lead. |
|---|---|---|
| Dearing & Co..... | £630 | £15 |
| Flew & Co. ..... | 495 | 5 |
| Turtle & Appleton ..... | 487 | 16 |
| Batley ..... | 485 | 14 |
| Barlow & Roberts..... | 475 | 10 |
| Marchant..... | 459 | 11 |
| Taprell & Davis..... | 431 | 14 |

LONDON.—For building new Turkish bath at Brixton, for Mr. Earle Bird. Mr. W. A. Large, architect:—

| | | | |
|---|---|---|---|
| Rice & Son..... | £4,536 | B. E. Nightingale ..... | £4,272 |
| Bywaters ..... | 4,536 | Prestige & Co. ..... | 4,180 |
| Whitehead & Co..... | 4,300 | King & Son ..... | 4,130 |
| Holdstock ..... | 4,290 | | |

LONDON.—For additions and alterations to the Public Baths, Marshall-street, W. Messrs. Spalding & Cross, architects, 15, Queen-street, Cheapside, E.C.:—

| | | | |
|---|---|---|---|
| John Mowlem & Co. ..... | £7,315 | James Smith & Sons ..... | £6,586 |
| William Downs ..... | 7,253 | B. E. Nightingale ..... | 6,547 |
| Stephens, Bastow, & Co... | 7,099 | Balaam Bros. ..... | 6,468 |
| A. Kellett ..... | 7,035 | Jones, Richards, & Co..... | 6,397 |
| F. G. Minter..... | 6,950 | William Brass & Son..... | 6,393 |
| J. Outhwaite & Son ..... | 6,875 | Rowe Bros. ..... | 6,350 |
| William Brooks ..... | 6,800 | H. L. Holloway ..... | 6,333 |
| Neave & Neave..... | 6,712 | W. & H. Castle..... | 6,291 |
| John F. Robson ..... | 6,673 | Gould & Brand..... ..... | 6,280 |
| Richard G. Battley . .... | 6,624 | | |

LONDON.—For the erection of new baths and lavatories, and for sundry repairs, at the Schools, Upper Tooting, S.W., for the Guardians of the Westminster Union. Mr. Jno. Waldram, C.E., surveyor 13, Buckingham-street, W.C. Quantities supplied by Mr. P. J. Waldram:—

| | | | |
|---|---|---|---|
| Colwill..... ..... | £797 | 0 | Money Marsland ..... £590 0 |
| Shiers ..... ..... | 666 | 0 | Somerford & Son ..... 579 0 |
| Lansdowne & Co..... | 645 | 0 | Reid & Co. ..... 574 10 |
| Co-operative Builders.... | 639 | 0 | Williams & Richards .... 570 0 |
| Hunt..... | 636 | 0 | Johnson & Manners..... 565 0 |
| Lilly ..... | 647 | 0 | Young & Lonsdale ..... 550 0 |
| Lorden & Son..... | 630 | 0 | Garrett & Son ..... 549 0 |
| Allen & Son..... | 616 | 0 | W. Johnson, Limited* .. 539 0 |
| Nightingale ..... | 612 | 0 | Wallis ..... 509 0 |
| Martin ..... | 597 | 0 | Cowper ..... 495 0 |

* Accepted.

[Surveyor's estimate, £572 10s. 0d.]

LONDON.—For shop-fittings, &c., at "The Albion Bakery" No. 213, Brompton-road, S.W., for Mr. E. P. Joyce. Mr. William A. Burr, architect, 65, Chancery-lane, W.C.:—

| | | | |
|---|---|---|---|
| Larke & Son..... | £244 | Hocking (accepted) ..... | £195 |
| Stevens Bros. ..... | 227 | | |

LONDON.—For the erection of a school on the Mulgrave-place site, to provide accommodation for 805 children, for the School Board for London. Mr. T. J. Bailey, Architect:—

| | | If brickwork be built in cement add |
|---|---|---|
| J. T. Chappell | £19,931 | ..... £320 |
| John Mowlem & Co. | 19,574 | ..... 327 |
| Lathey Bros. | 19,524 | ..... 359 |
| T. Boyce | 18,400 | ..... 270 |
| Holliday & Greenwood | 18,257 | ..... 312 |
| Hart Bros. | 17,863 | ..... 305 |
| William Downs | 17,416 | ..... 261 |
| Foster & Dickson | 17,278 | ..... 198 |
| J. W. Hobbs & Co., Ltd., 13, Cecil-street, Strand | 17,210* | ..... 290* |
| Holloway Bros. | 16,975 | ..... 300 |

* Recommended for acceptance by the Works Committee.

LONDON.—For the enlargement of Orange-street school, Borough, by 583 places; erecting cookery, laundry, and technical rooms; new covered playgrounds, and water-closets for all departments; new system of drainage throughout the school; new cloak-rooms and lavatories, and new staircases for the boys' and girls'; new teachers' rooms, and stock rooms, &c., and enlarging schoolkeeper's house, for the School Board for London. Mr. T. J. Bailey, Architect:—

| | | If brickwork be built in cement add |
|---|---|---|
| Hart Bros. | £16,533 | ..... £295 |
| Treasure & Son | 16,187 | ..... 200 |
| S. & W. Pattinson | 15 816 | ..... 156 |
| J. Marsland | 15,675 | ..... 200 |
| J. Smith & Sons | 15,496 | ..... 225 |
| Lathey Bros. | 15,220 | ..... 236 |
| J. Tyerman* | *15,045 | ..... *320 |
| W. Downs† | 13,852 | ..... 175 |

* Recommended by the Works' Committee for acceptance.
† This contractor adds "subject to award of Arbitration maintaining current rate of wages."

LONDON.—For the enlargement of Canonbury-road school, Islington, by 433 places; erecting single cookery centre, and new water-closets; and providing heating apparatus for the whole school; and new system of drainage throughout, for the School Board for London. Mr. T. J. Bailey, Architect:—

| | | If brickwork be built in cement add |
|---|---|---|
| Treasure & Son | £14,269 6 0 | ..... £190 0 0 |
| J. Willmott & Sons | 12,860 10 0 | ..... 200 0 0 |
| W. M. Dabbs | 12,585 0 0 | ..... 98 0 0 |
| W. Gregor & Son | 12,360 0 0 | ..... 200 0 0 |
| Killby & Gayford | 12,337 0 0 | ..... 102 0 0 |
| J. Grove & Son | 12,131 0 0 | ..... 95 0 0 |
| F. J. Coxhead* | *11,949 0 0 | ..... *171 17 2 |

* Recommended by the Works Committee for acceptance.

LONDON.—For erecting a new chimney-shaft for the heating apparatus to the entire height of the building, Oban-street school, Bromley, for the School Board for London. Mr. T. J. Bailey, Architect:—

| | | | |
|---|---|---|---|
| Atherton & Latta | £159 | Killby & Gayford, 87, Worship-street* | £147 |
| J. T. Robey | 150 | | |

* Recommended by the Works Committee for acceptance.

LONDON.—For providing heating apparatus on the low pressure hot water system for the school now in course of erection in Wellington-road, Barnsbury, for the School Board for London. Mr. T. J. Bailey, Architect:—

| | | | |
|---|---|---|---|
| John Grundy | £695 | C. P. Kinnell & Co. | £375 |
| Fraser & Fraser | 407 | Purcell & Nobbs, Cleveland-street, Fitzroy-square, W.* | 363 |
| J. & F. May | 395 | | |
| Comyn, Ching, & Co. | 388 | | |

* Recommended by the Works Committee for acceptance.

LONDON.—For erectiong offices on land adjoining the Dalgleish-street site, Limehouse, for the School Board for London. Mr. T. J. Bailey, Architect:—

| | | | |
|---|---|---|---|
| S. & W. Pattinson | £2,840 | Killby & Gayford | £2,663 |
| Atherton & Latta | 2,790 | T. Boyce | 2,582 |
| J. T. Chappell | 2,780 | Holliday & Greenwood, Loughborough-park, Brixton* | 2,577 |
| Holloway Bros. | 2,700 | | |
| W. M. Dabbs | 2,699 | | |
| E. Lawrance & Sons | 2,670 | | |

* Recommended by the Works Committee for acceptance.

LONDON.—For executing the necessary alterations and providing additional fittings for the laboratory in connexion with the pupil teachers' school, Clyde-street, Deptford, for the School Board for London. Mr. T. J. Bailey, Architect:—

| | | | |
|---|---|---|---|
| Davis Bros. | £233 0 | W. Holding & Son, Clarence-street, Greenwich* | £129 15 |
| J. Marsland | 148 0 | | |

* Recommended by the Works Committee for acceptance.

NEWPORT (Mon.).—For extension to the Newport Model Lodging-house Co.'s premises, Dock-street, Newport, Mon. Mr. E. A. Lansdowne, architect, 26, High-street, Newport, Mon. Quantities by the architect:—

| | | | |
|---|---|---|---|
| E. Richards | £2,700 | Morgan & Roberts | £2,150 |
| John Linton | 2,495 | Wm. Price | 2,074 |
| W. Blackburne | 2,289 | [All of Newport]. | |

PONTYPOOL (Mon.).—For the erection of the Hanbury assembly-rooms, arcade, shops, &c., at Pontypool. Mr. E. A. Lansdowne, architect, 26, High-street, Newport, Mon. Quantities by the architect:—

| | | | |
|---|---|---|---|
| Welsh | £6,490 | Stephens & Bastow | £5,299 |
| W. Price | 5,788 | Morgan & Evans | 4,997 |
| H. Parfitt | 5,389 | John Linton, Newport* | 4,895 |

* Accepted.

RUDGWICK (Sussex).—For the erection of a private house. Mr. W. H. Harrison, A.R.I.B.A., architect. Quantities by Mr. F. C. Hunt:—

| | | | |
|---|---|---|---|
| Andrew & Nanson | £2,377 | F. T. Chinchen* | £2,000 |
| Hunter & Bryant | 2,007 | | |

* Accepted.

WALTON-ON-THE-NAZE.—For constructing sea defences, groyne terraces and promenades, Nos. 1 and 2 Contracts. B. Cooke & Co., Phœnix Wharf, Battersea (accepted).
[Estimated cost of work about £13,000.]

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R. & Co.—J. M.—H. B. N.—J. D.—W. C.—E. & Sons (we usually prefer to give such information either from a published report or on official authority).—U. A. S.—J. S. (no space this week; next week if possible).—C. J. C. P. (too late).

**All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.**

**We are compelled to decline pointing out books and giving addresses**

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**Asphalte.**—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds, and milk-rooms granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.

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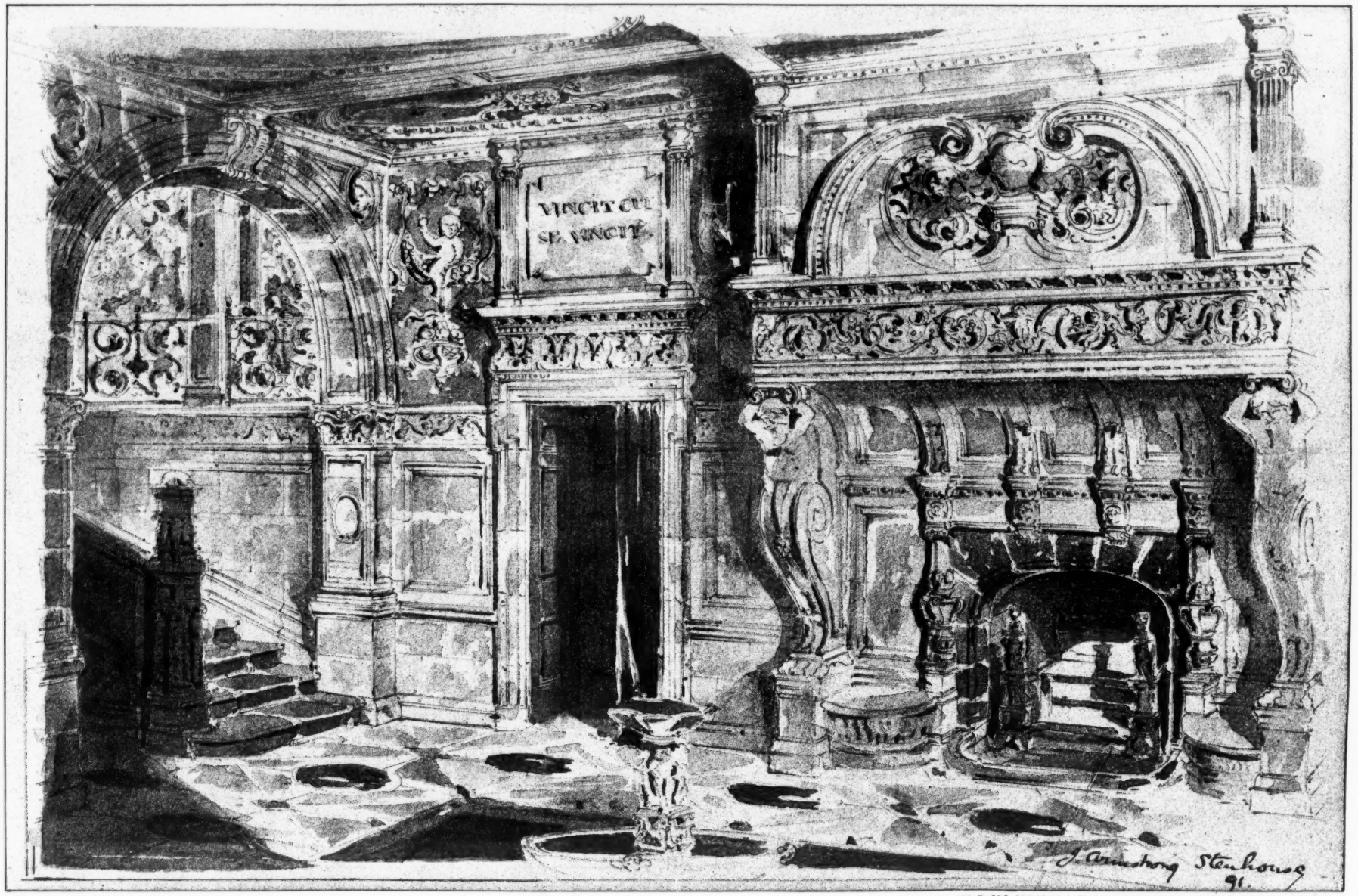
GLASGOW: 47 and 49, St. Enoch-sq




INK-PHOTO, SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

DESIGN FOR A HALL INTERIOR.—By Mr. J. Armstrong Stenhouse.

*Royal Academy Exhibition, 1891.*

INK-PHOTO SPRAGUE & Co 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

SCHEME FOR DECORATION IN COLOURED GESSO.—By Mr. Henry W. Batley.

*Royal Academy Exhibition, 1891.*

Plan
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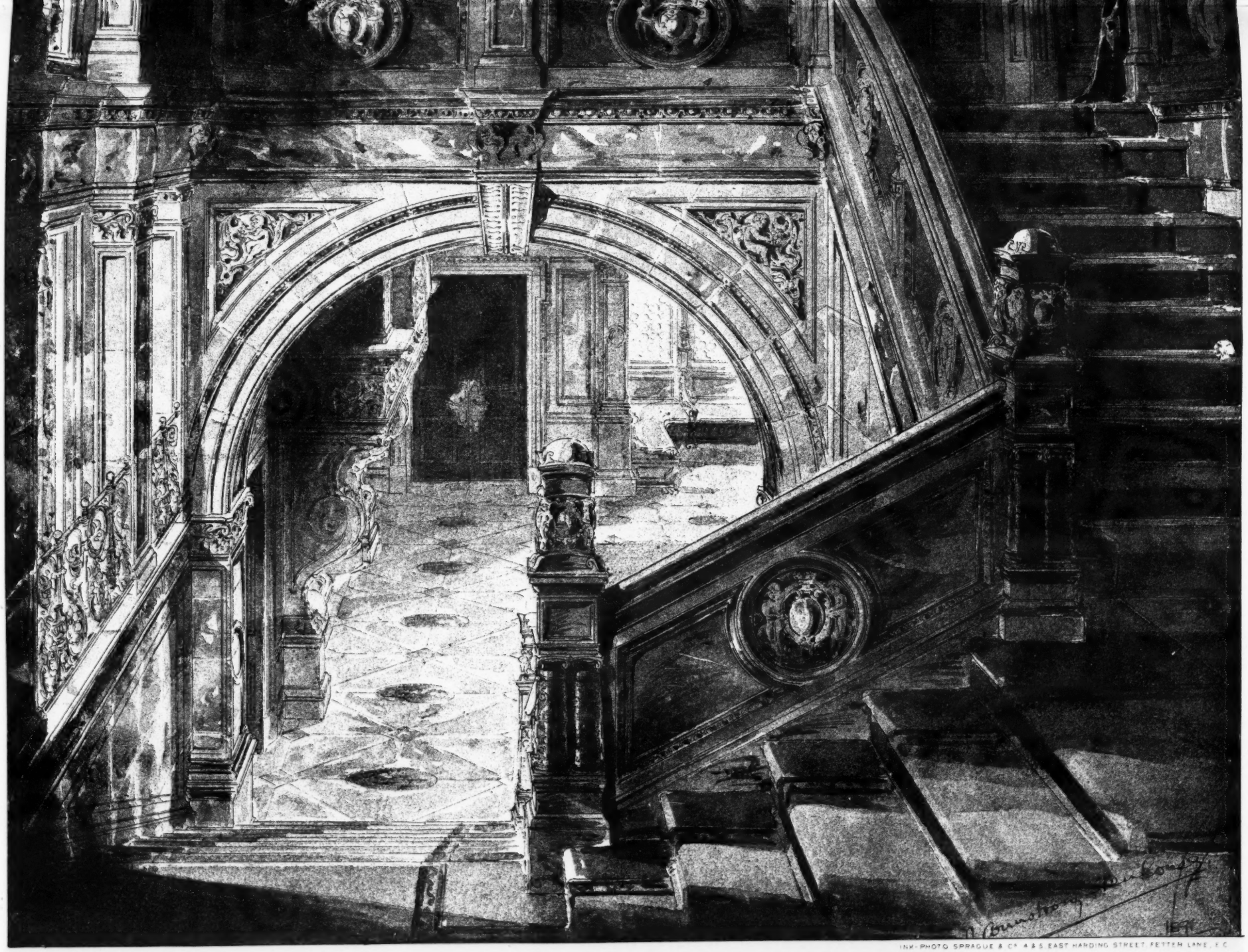
CORRIDOR
CORRIDOR



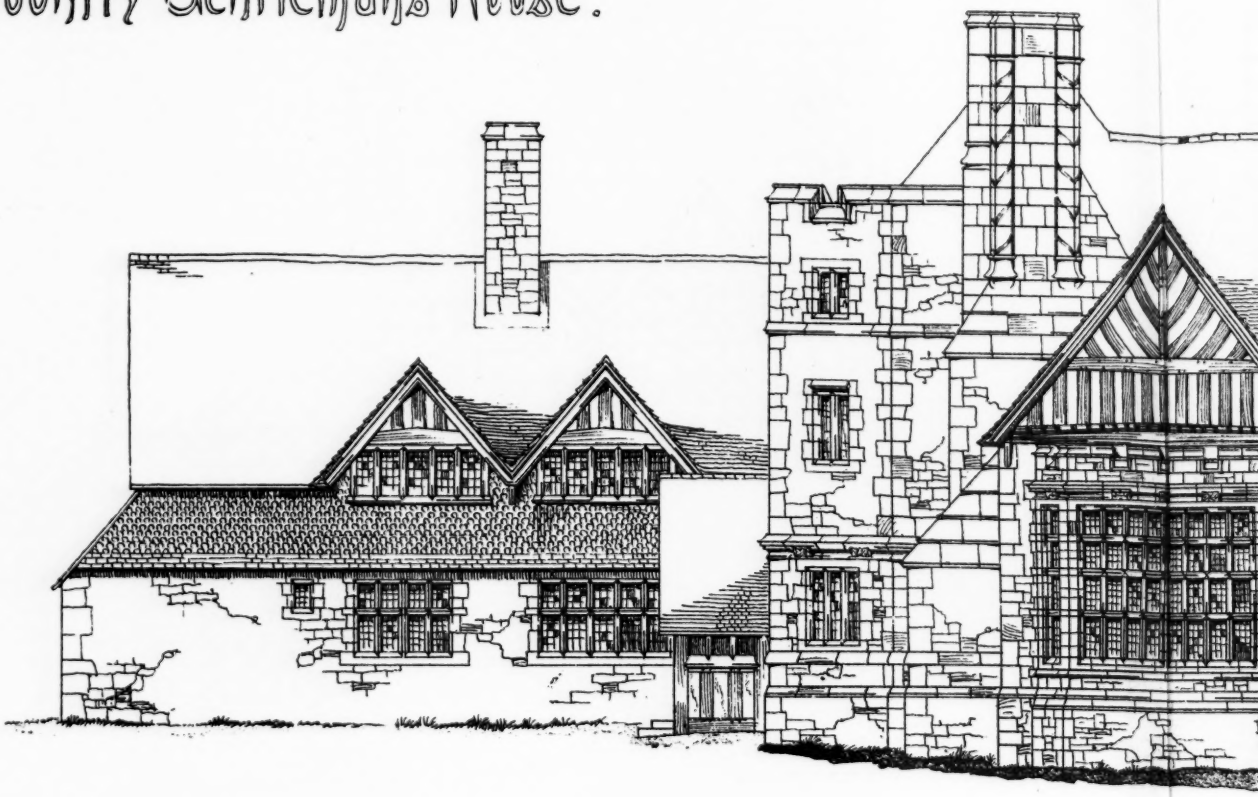
INK-PHOTO SPRAGUE & Co. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

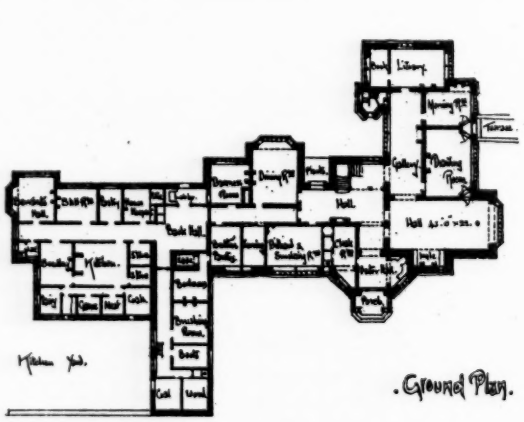
DESIGN FOR A STAIRCASE INTERIOR.—By Mr. J. Armstrong Stenhouse.

*Royal Academy Exhibition, 1891.*

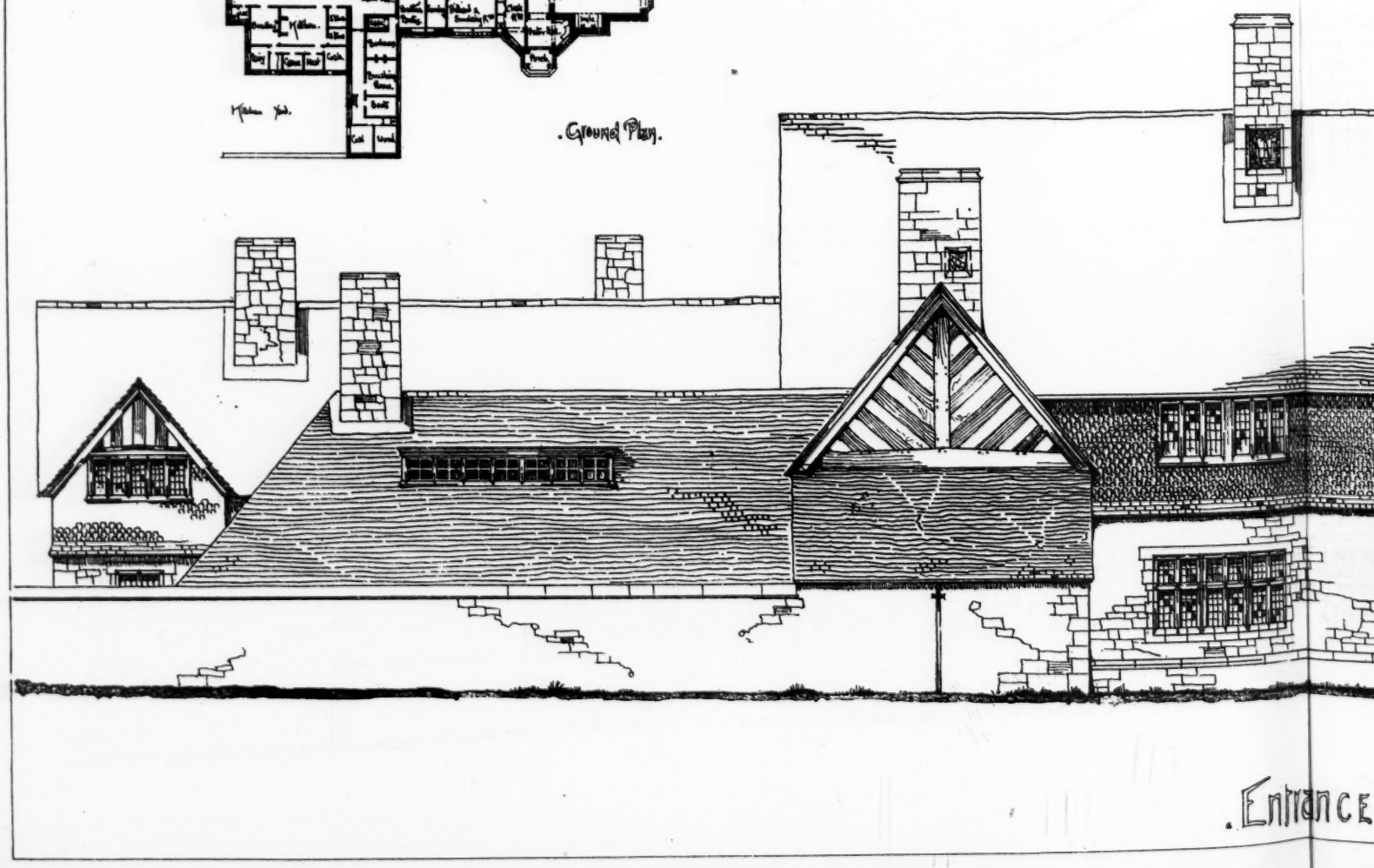
. Royal Academy Travelling Studentship.

. A Country Gentleman's House.



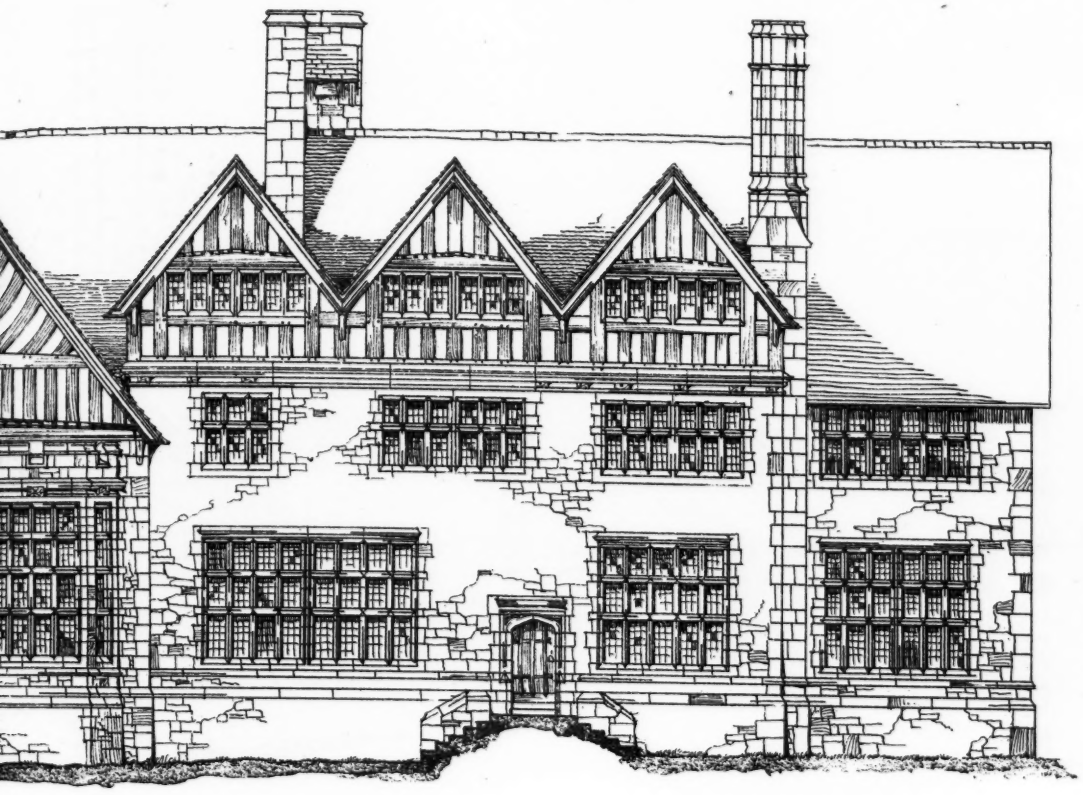


. Ground Plan.



. Entrance

*Royal Academy Exhibition, 1891.*



Garden Front.

NCE Front.

Charles. Spooner.
1890.

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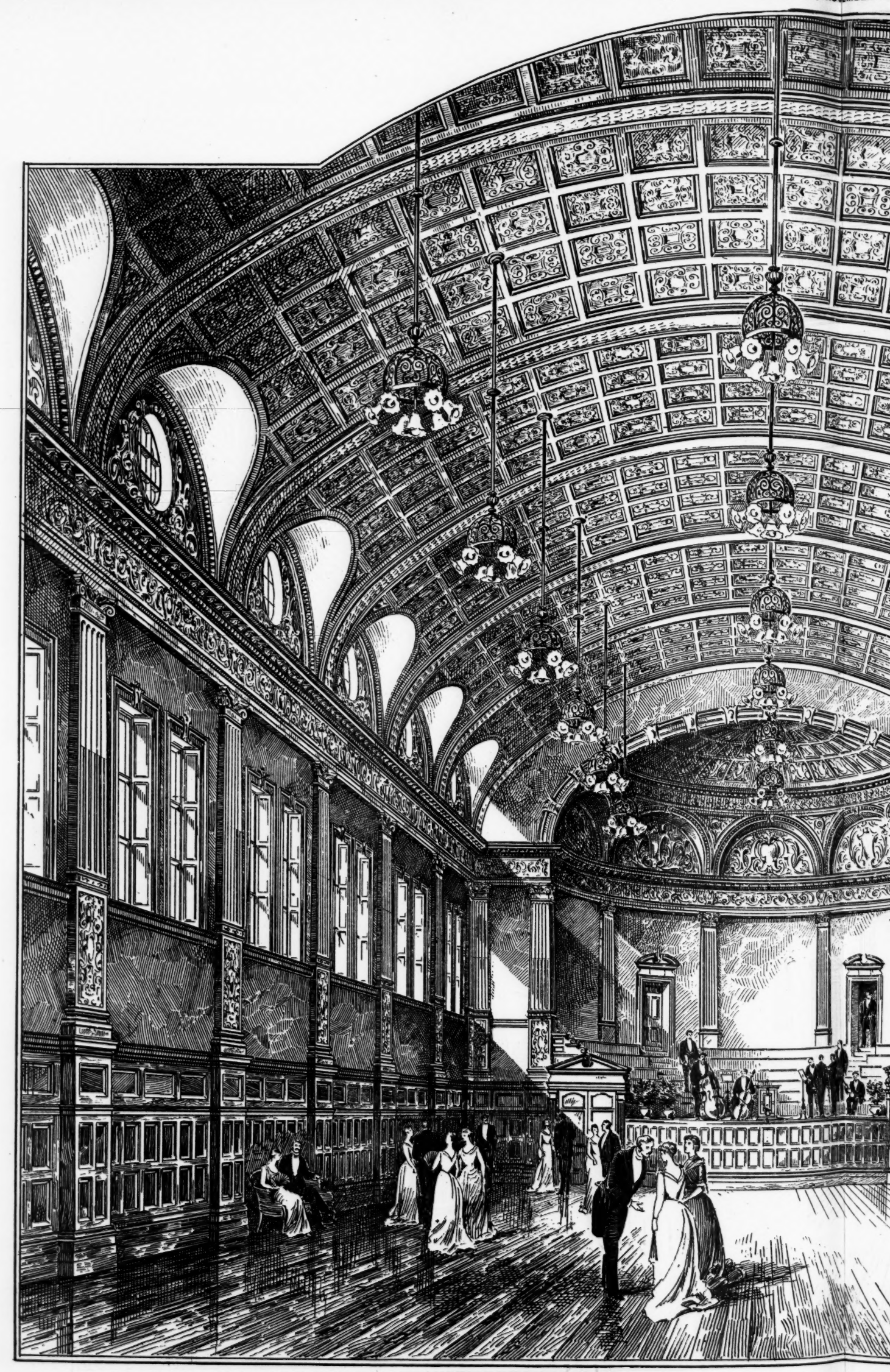

THE ROYAL ASSEMBLY HALL, SOUTH SHIELDS.—Mr. J

PHOTO-LITHO. SPRAGUE & Co. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

LDS.—Mr. J. H. Morton, F.R.I.B.A., Architect.